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JUNE
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TELEPHONE ENGINEER

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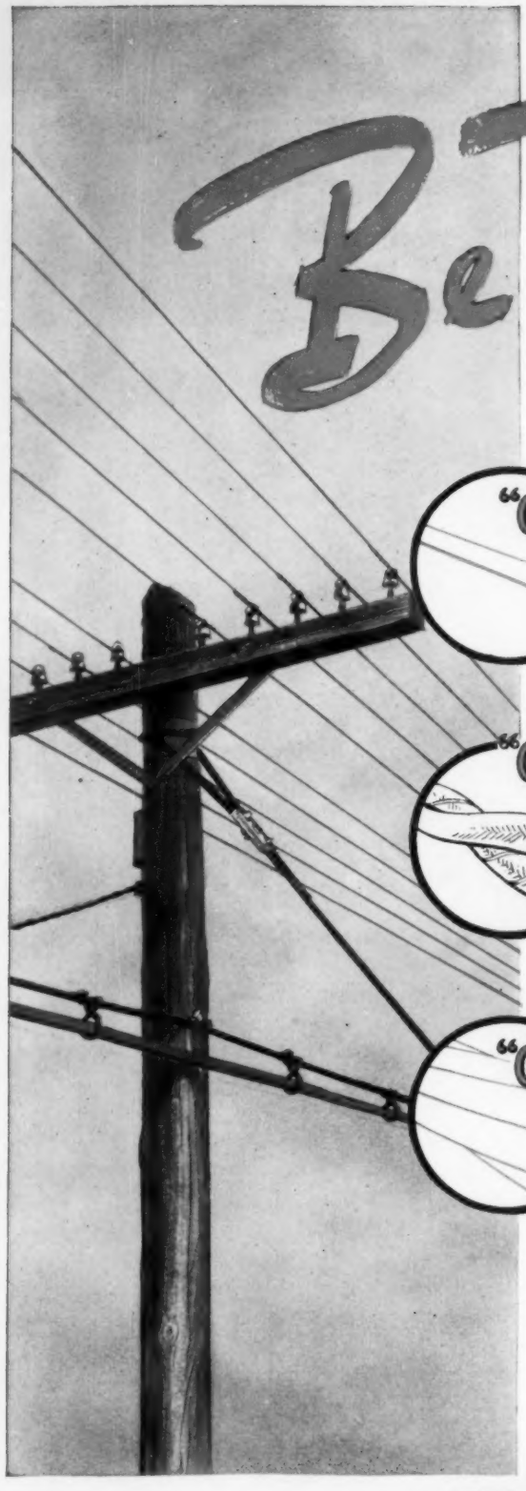
FEATURES — If War Comes to Us — Read Page 18 . . . What About Home Problems — An Editorial . . . Association Activities . . . Telephone Short Course . . . Line & Desk . . . Long Lines



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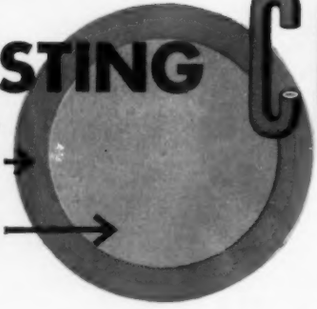
PERMANENTLY MOLTEN-WELDED COPPER EXTERIOR → SURROUNDING AND PROTECTING STEEL CORE →



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a Name comes to Life

WHEN YOU DO BUSINESS BY LONG DISTANCE!

A complaint, a cancelation, a delinquent account drops on your desk. The signature may mean little to you—a line of type—a scrawl on a piece of paper.

But reach for your telephone and call that name across the miles. Like magic, it leaps to life and becomes a *man*. A man at a desk like yours—with problems and pleasures like yours. Talking things over helps you get at the heart of the trouble and find a reasonable solution. Chances are, you keep a customer, save a sale, or arrange a settlement.

Rates for all transcontinental calls and most other calls over 420 air-line miles were reduced on May 1.

When we received a letter from Washington this morning, containing Roland Davies report for this issue, we were as interested as you will be in its contents. A large portion of our correspondence from readers during the past few weeks asked us what position the communications industry would be in the case of war. Mr. Davies explains all in this issue.

▼

Also of interest to readers will be the announcement of our Book Department and its activities during the past month. Miss Rice who attends your wants in that department, informs us that our list of books pertaining to the industry has been brought completely up-to-date with information at hand as to complete contents, date of publication, etc. A complete service is now available that you might complete your library.

▼

"Quizzicus," the bane of inventors, continues to dominate the mail bag. His questions on page 23 will result in many brainstorms and head scratching. Perhaps you have had ideas along these lines that your work might be made easier for you. If you have—fire them in and lets keep these manufacturers busy. To balance these ideas we are making a regular feature of reproducing new products in each issue. Do you like it?

TELEPHONE ENGINEER

MANAGEMENT · ENGINEERING · MAINTENANCE

Vol. 44, No. 6 **JUNE, 1940**

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A Magazine devoted to the interests of the entire telephone industry—operating men and manufacturers.

SERVING THE FIVE BILLION DOLLAR TELEPHONE INDUSTRY

Founded in 1909

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An Open Letter

It is with a degree of personal pride that I point to you the realization of my first major ambition after assuming the presidency of TELEPHONE ENGINEER a few years ago—that of bringing telephone trade journals out of the doldrums of commonplace publications and making them second to none in any industry.

Fulfilling my promise to the telephone industry, to give it a publication of which any industry might be proud, TELEPHONE ENGINEER took the lead in the telephone field and will be remembered as the first to initiate improvements in editorial content and more attractive appearance. Today TELEPHONE ENGINEER can be favorably compared to any trade magazine published . . . and is probably head and shoulders above most of them.

. . . But our greater achievements are yet to come. Beginning July 1st we are entering our second major ambition—that of complete coverage in the United States which is preliminary to international coverage for the world's greatest public utility. On that date will appear in attractive dress and with the same degree of care in editorial preparation, the first issue of Fortnightly TELEPHONE ENGINEER. This edition will reach every Independent telephone company in the United States of which it is possible to secure the name and address.

It has long been my feeling that a publication, in order to fulfill its obligation to the industry it represents, must cover the entire field. In this way only is it possible to carry messages affecting the industry to the four corners of the globe, and to achieve the ambitions and results for which it is intended. A publication assumes an obligation to its advertisers to carry their messages to every prospective customer possible and in no other way can this be possible except through constant and untiring efforts to make every telephone manager a reader, and to furnish editorial matter that will tie him to its pages until the last line is read.

Other improvements will be announced from time to time as a publisher must strive to execute improvements for the betterment of the industry he represents. Our industry is a great one and deserves the best to be had.

Our business is that of publishing exclusively; we own no part of any manufacturing or operating concern . . . and . . . therefore we have no companies to favor or promote. No manufacturer or operating concern owns or controls any part of TELEPHONE ENGINEER and our editorial columns will be used for the betterment of the industry as they have been in the past. No favors will be bestowed on one concern to the detriment of others.

In reaching the goal we have attained the advertisers in TELEPHONE ENGINEER have played an integral part of our success for which we offer our sincere thanks. In cooperating with us for yet higher achievements, advertisers will also be putting their products before the greatest number in the most favorable light.

When you receive your first copy of Fortnightly TELEPHONE ENGINEER, I will deem it as a personal favor if you will look through it carefully—read it—and drop me a line of comment on same.

Sincerely,

TELEPHONE ENGINEER PUBLISHING CORP.
J. A. Smith, President.

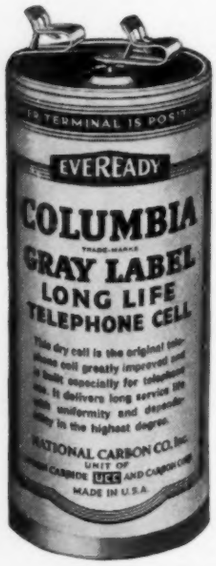
"Gee, Pal, Maybe I'd better 'phone the doctor"

THREE REASONS WHY THEY ARE BETTER

1. MORE ECONOMICAL. Give you many extra hours of service life.

2. SUSTAINED VOLTAGE. Means improved transmission efficiency.

3. UNIFORM QUALITY. Every cell identical...built to a single standard of highest quality.



WHETHER it's to "call a doctor," or for the countless other services it performs every day, the telephone is an ever-present "friend in need."

However, its *reliability* depends on *your* selection of the most efficient operating equipment.

Take dry cells. For highest transmission efficiency, you need dry batteries which can be depended on to *sustain their voltage.*

"Eveready" "Columbia" "Gray Label" Long Life Dry Cells designed by both telephone and battery engineers do this job and do it better. This means higher transmission efficiency...increased subscriber satisfaction...and, because they *last longer,* fewer service calls.

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EDITORIAL

What About Home Problems?

A GREAT deal has been said by opponents of the New Deal in the past seven years about possible break-down of our system of Democracy. Freedom of enterprise has been sharply curtailed by many of the social reform laws. Probably none of these laws has more vitally affected the relations between employee and employer than the National Labor Standards Act passed in 1938, more generally known as the Wagner Act, and the Fair Labor Standards Act known as the Wage-Hour Law.

The effect of these laws has been given serious consideration by Congress during the past two sessions, and many amendments were suggested. There is danger now that the war atmosphere will cause a side-tracking of these amendments, which, in our opinion, are vitally necessary to the future of both industry and labor. Recently the National Labor Relations Act has been invoked in some of our larger independent telephone companies, bringing more directly to our attention some of the unfair provisions of this controversial law.

Let us remember that the Wagner Act and the Wage-Hour Act have no relation to each other. The Wagner Act has nothing to do with wages and hours. It merely created the National Labor Relations Board, giving to that board the power to prevent any interference of any employer engaged in interstate commerce with efforts of his employees to organize a labor union for the purpose of collective bargaining with their employer. It makes collective bargaining compulsory. Assuming that the Act was prepared and introduced by Senator Wagner for the purpose of protecting labor in its fundamental right to organize, it becomes apparent that it has taken away equally fundamental rights of the employer to even peacefully resist organization.

The Preamble states that the Act is to diminish the causes of labor disputes, burdening or obstructing interstate foreign commerce, etc. It was approved and went into effect July 5, 1935. What follows? According to the U. S. Department of Labor, the total number of strikes in the United States for three years prior to the passage of the Act was 4,392, involving 1,959,177 workers. During three years following the passage of the Act there were 9,684 strikes, involving 3,337,645 workers. Taking the first six months of the years 1932-3-4-5, compared with the first six months of the years 1936-7-8-9, we find the total number of strikes increased 113.9 percent; total number of workers involved increased 93.7 percent, and man days idle increased 80.9 percent.

Statistics show that strikes increase as employment increases. Some weight should therefore be given to that factor, but no one can forget the sitdown strikes in the motor industry which paralyzed the city of Detroit, nor the severity of the strikes in the Bethlehem Steel plant and the Youngstown Sheet and Tube plants. Dozens of minor strikes, such as the Fansteel Metallurgic Company in Chicago, visited the country.

WHAT is the matter with this law? Can it be remedied? The fundamental injustice appears to be in granting to the employees the right to organize in any way they wish, joining any union they may desire or creating a new union of their own, but in any event prohibiting the employer from doing the slightest thing which could be construed as attempting to influence, coerce, dominate or restrain the employee in his attempt to organize. The paid labor organizer can come into any group of employees, say anything he pleases, circulate any slanderous statements regarding the employer which he desires, misrepresent benefits of the proposed organization in any way he pleases, without violating any provision of the law, but the employer dare not open his mouth to deny any false statements or to advise his employees in any matters affecting the proposed organization. The pendulum has swung entirely too far to the left in an effort to curb the activities of a few unfair employers.

The law further provides that if attempts are made to set up more than one union organization in an undustry that the employees may petition the Board for an election to determine which organization the majority may choose as their collective bargaining agency. The employer has no such right; he cannot call for such an election to determine which group he should bargain with. Any group which has a grievance following atempts to organize, may file a charge with the National Labor Relations Board against the employer, alleging unfair practice, whereupon the Government sets the matter for a hearing and acts as prosecutor,

judge and jury for the disgruntled labor organizer, in which event the employer must pay all of the expense of defending either himself or any union which he may have recognized as a proper collective bargaining agency. The good faith of the employer is of no benefit to him. Long drawn-out, expensive hearings are held and the procedure is such that the employer may wait for months before a decision is rendered, and then usually finds the decision adverse to him, regardless of his good faith attempts to observe the law. If the decision is adverse the law gives him the right of appeal to the Circuit Court of Appeals but the adverse decision of the Board is safeguarded by a provision that the Court cannot disturb an order of the Board if there is any evidence in the record to sustain it.

Many amendments have been proposed to this act, the most recent being bills introduced by Mrs. Norton, chairman of the Labor Committee of the House, and by Congressman Howard Smith, chairman of the special committees of the House to investigate the Labor Relations Board. The controversy over these amendments has been so bitter that we venture to suggest a few simple amendments which we believe would make the Act more workable and not take away any rights from the honest workman or the honest labor organizer. The suggestions are as follows:

1. The law should provide equal opportunity for labor organizations and employers to present arguments to employees for and against proposed organizations.

2. There should be absolute prohibition against misrepresentations of facts by either side, with penalties for violation of this provision.

3. Definition is needed as to eligibility of membership in unions and qualifications or disqualifications of those engaged in active organization work.

4. Employers should have the right to demand an election, as well as employees.

5. Upon appeal from Labor Board decisions the Court should by all means review the evidence, and decide the case on its merits.

Telephone men throughout the country might well contact their Congressman and urge the need for amendments to the Wagner Act along the lines suggested.

Association Activities

State telephone associations are reporting larger attendance and more interest in sessions than ever before. The rapidly changing conditions brought on by government activity in preparedness and its subsequent tax problems plus indications that communications will remain in private ownership in case of war provide subjects that some programs did not prepare for but was perhaps the main topic of conversation in convention lobbies in-between sessions. Since our last issue the state Associations of Indiana, Pennsylvania, Wisconsin, Illinois and New York have held their annual meetings. As a cross section opinion it appears that Independents are enjoying excellent business with a small steady increase in installations in most sections.

Hoosiers Re-elect Achatz

Meeting in Indianapolis on May 8 and 9, the Indiana Telephone Association were presented with a streamlined program of many subjects. R. V. Achatz, general manager of the Southern Indiana Telephone Company, was again selected to lead the Association as president. W. H. VanHorn, Logansport, was elected first vice president and R. D. Pontius, of Rochester, as second vice president. Able and active W. H. Beck was re-elected secretary-treasurer. Attendance of approximately 500 broke all former records.

Heard by the assembled convention were: Mr. Achatz; Clarence A. Farmer, Indiana State Chamber of Commerce; Fred Hosea, Franklin; Mr. Beck; Mr. Pontius and Louis Pitcher, of the USITA. Conferences were held on plant, accounting and commercial divisions. In presenting a paper on "Special Selling Efforts," Mr. Chester Barkman, sales engineer of the Indiana Bell, discussed selling efforts in the rural areas and how his company had progressively attacked this problem of regaining ru-

(Please turn to page 26)

Cameraman Ray Blain

Upper left: John Wright, Loren M. Berry, K. B. Schotte, G. S. Herbert, Ben Schotte, Dr. Ray H. Manson. Upper right: Mr. Twigg of Harrisburg explaining how to locate cable trouble at the plant conference. Lower left: Louis Pitcher and Ray H. Manson, Vice President and General Manager of the Stromberg-Carlson Co. talking things over. Center: William H. Harrison, Vice President A T & T Co. and G. S. Herbert, President Pa. Independent Telephone Association. Lower right: Explaining how cable is manufactured in the plant conference.

One type of 4-wheel trailer used to transport men.

The pay station trailer in use at the Cherry Blossom Festival in Washington.

Loading cable splicing trailer in large type pole trailer.

Trailers and Their Use in Telephone Construction

(CONCLUSION)

By
RAY BLAIN

The Pole Dinkey

THE pole dinkey is designed primarily for the hauling of one or more, long, heavy poles for comparatively short distances. The dinkey is sturdily constructed so as to withstand severe service, yet is small and compact in size and may be easily pushed around manually or loaded in the truck when not in use for hauling long distances. The low loading height of the dinkey, p[illegible] its style of construction, lightens the usually difficult task of loading and unloading long heavy poles. The winch line is ordinarily used for loading poles of the heavy variety on trailers of all types either by lifting them with the winch line on the derrick or cross-bar sheave. The winch line may also be used to roll a heavy pole up a skid for loading onto a trailer or dinkey, when a derrick is not available.

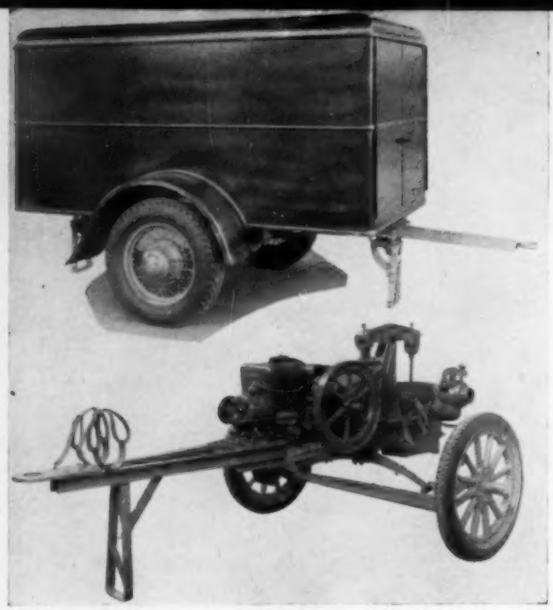
Combination Type Trailers

OFTEN, other than the larger telephone companies can make good use of combination types of trailers. One of these special types which can often be used to good advantage is the combination pole and cable reel trailer. This trailer is equipped so that the mounting and unmounting of sliding, cam locking, stanchions, may be quickly and easily accomplished as desired. Cable reel saddles may be securely attached and afford the same effective means of loading and transporting cable as is provided by the standard cable reel trailers. Guides on the cable reel saddles are quickly adjustable to accommodate various width reels.

The combination pole and general purpose trailer also often prove a real labor saver for the smaller companies. One such type is a light two-wheel unit sturdily constructed and especially designed for use with one-half ton trucks equipped with pick-up, installation or service bodies. Each end of the trailer platform is provided with chains and chain tighteners for the handling of a small load of poles. The tongue may be equipped with a brice ball coupler of a standard pintle hook coupling eye as desired. The tongue is also arranged so that it may be removed for attaching to the front end of a pole as a drawbar. Removable rack sides and ends with deep lower panels are furnished as standard equipment. It will be surprising the numerous odd jobs around the exchange which may be handled with this type of trailer. The small size in this type of trailer weighs about five hundred pounds and has a carrying capacity of fifteen hundred pounds. The larger size weighs about seven hundred and forty pounds with a carrying capacity of two thousand pounds. Steel wire spoke wheels with single tires 4.75 x 19 are used on the small size and 30 x 5 on the large size.

Another convenient combination

The air compressor trailer and jack hammer in use.



LEFT — (Above) One type of tool box trailer. (Below) One type of pump trailer.

RIGHT— Small splicing trailer loaded on pole trailer.

trailer of a similar type though slightly larger weighs about nine hundred pounds and has a carrying capacity of from one and one-half to two tons. This trailer will prove suitable for hauling small pole loads and has the added advantage of a steel platform and side panels which make it suitable for hauling other loads, such as brush, coils of wire, crossarms, cement, sand, etc. An eccentric type pole binder and pole saddle is provided at each end of the platform for securing the first pole in position and additional poles are lashed to it. The first pole is used as the tongue and should be attached to the truck by means of a draw-bar. This trailer ordinarily uses disc wheels and single 16 x 2½ tires.

The Pump Trailer

SMALL but sturdy two-wheel trailers are available for the permanent installation of small powerful gas engine operated pumps. These pumps are extremely useful for removing water from manholes of underground cable systems. This trailer may be quickly attached to any truck and may be hauled at regular traffic speeds which permits its quick delivery to the job and available for instant operation. One type of pump trailer is equipped with a channel iron frame and a running gear consisting of a drop axle with a transverse spring and radius rods. A folding support is provided at the front and a small tool box in the rear. This trailer comes in two sizes weighing five hundred and forty and six hundred and fifty pounds and with a carrying capacity of one thousand and fifteen hundred pounds. Single pneumatic tires 30 x 3½ are usually considered satisfactory.

The Tool Box Trailer

ON various underground conduit jobs where a large number of men are being worked, considerable time may be lost in moving numerous tools to and from the job to the storeroom. This lost motion may all be avoided by the use of a tool box which may be securely locked and left on the job at all times. This box is also most convenient for moving along the line of work to any point desired and is most useful in keeping tools instantly available. While pneumatic tires are convenient on tool box trailers, they are not ordinarily considered absolutely essential as on the other trailers described. The tool box is not often moved long distances and solid wheels can often be used to keep down costs. This type of trailer is often fabricated locally at low cost.

The Air Compressor Trailer

THE portable air compressor is perhaps one of the oldest types of trailers, but it has recently been brought up-to-date. The older types were generally the four-wheel variety and were equipped with common iron wheels of the farm wagon variety. While the four-wheel air compressor trailer is still used to some extent, there is a two-wheel type that may be used satisfactorily on most kinds of telephone work. Both the two and four-wheel modern compressor trailers are equipped with pneumatic tires. While an air compressor can and is often mounted on a truck, the trailer is entirely satisfactory as it can be left on the job as long as required while the truck goes on other work to return when a move is necessary. The small gasoline engine operated compressor, mounted on a two-wheel trailer may now be purchased at a cost within the reach of any telephone company which may have underground cable plant to construct.

Four Wheel Trailers

WHILE four-wheel trailers are not as generally used on telephone work as are the two-wheel variety, there are numerous jobs where their need is extremely important. One four-wheel trailer known as the machinery type is small, compact, well constructed and designed primarily for the transportation of heavy equipment such as tractor mounted earth boring machines, small trenchers or ditchers, concrete mixers, transformers, large reels of cable and other heavy equipment. This trailer is equipped with pneumatic tires of ample carrying capacity, dual in the rear, and single in front, and may be hauled at average truck speed without difficulty. Hand operated brakes and loading skids are furnished as standard equipment. Power brakes may be provided, if desired. This trailer weighs about twenty-five hundred pounds and has a rated carrying capacity of about four tons.

A trailer of similar design, although larger and equipped with dual tires both front and rear weighs about fifty-six

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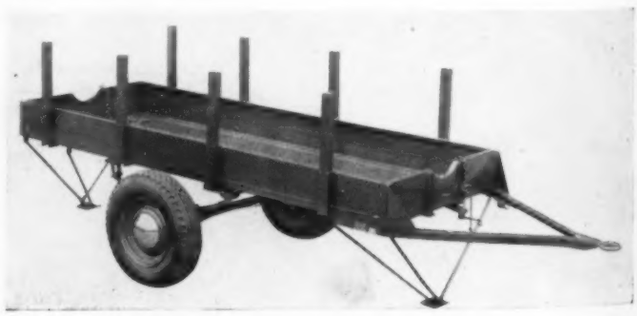


One type of pole dinkey designed to carry a pay load of at least 4000 pounds, when proper tires are used.

"Tapping In"

On Washington

NOT only under the present situation of intense national defense preparedness but also even in event of any future involvement in war, the telephone industry, both in its operating and manufacturing branches, is to be left undisturbed under their existing private management to care for the military and defense needs on a priority basis but to furnish service to the public in the normal way as far as it can possibly be performed under such an extreme emergency situation. This is the prevailing policy of the highest Army and Navy authorities and seems to augur that private ownership will be the aim throughout the emergency so it will be maintained when normal conditions return.

The highest military authorities hold to the view that the best results can be attained by utilizing the skill and experience of the present telephone industry management without superimposing a government control board with government officials, relatively inexperienced about the affairs of the industry. This policy is predicated upon the ideas, at present held by the military leadership, that since the telephone industry is probably the best prepared of all industries from a national defense standpoint and is operating efficiently and satisfactorily it would be wasteful and a duplication of effort to place it under a government control board, particularly an agency with extensive authority. The telephone industry is engaging in comprehensive efforts to achieve a complete plan of coordination and cooperation with the military services and the national defense program. This planning is deemed highly satisfactory and as a result the industry, according to the present views, is not to be disturbed from its normal setup except for the definite military and defense needs.

By ROLAND C. DAVIES
Editor
Telecommunications Reports

Based on the present outlook, there appears to be practically no basis for conjuring up a spectre of government ownership of communications because of the emergency. Unquestionably the Army and Navy have been given the leadership in the defense planning and would retain to a much stronger degree their dominant position in any war involvement. Attempts of the New Deal elements to enter the picture of handling the defense program have been unsuccessful and the administration and President Roosevelt have given definite indications that the military authorities, aided by the industrial leaders serving on the National Defense Commission headed by Knudsen and Stettinius, are to continue handling the helm of the defense mobilization. The FCC has not been given any role in this defense planning and, even if it is brought into the picture, will probably only have some responsibilities over broadcasting with communications, including the telephone industry, left under the aegis of the War and Navy Departments.

FOR the immediate future, the telephone manufacturing industry will play the most important part in the defense program as the Army Signal Corps, in particular, and the Naval Communications Service to a lesser degree are now mapping their requirements in detail for an emergency or mobilization basis. This will mean that the manufacturing industry will be called upon in the near future to supply large orders of telephone equipment, wire and other communications supplies, especially radio apparatus for use in aviation and mobile military operations such as tanks and motorized forces. The Navy Department will need intercommunicating telephone systems for the new warships being built and a considerable amount of radio apparatus both for its shore stations, new bases and for use in seaplanes.

The Army Signal Corps will have $60,000,000 and upwards to expend for new communications equipment under the emergency defense appropriations which have been rushed through Congress since President Roosevelt commenced his drive to achieve the defense preparedness of the Nation. These requirements of the Signal Corps have been disclosed in a general way as follows: Field telephone wire (miles) on hand May 1, were 16,800 and to be secured to bring up its supplies to the protective mobilization plan 65,491 miles; Field telephones on hand May 1 were 15,800 and required to complete the "p. m. p." 47,602; Three types of radio sets, on hand 1,225 and needed to complete program 4,388; and Detector Sets for air raids 182 needed under mobilization plan. The Navy Department has not yet completed its allocations for communications apparatus.

The telephone operating companies will have undoubtedly for their first major functioning under the preparedness drive the furnishing of telephone facilities at the expanded present nd the new projected Army concentration points and aviation fields and the Nvy's bases and air stations. At the present military and naval bases there will be the requirement, in all probability, for a considerable expansion of the present telephone wire facilities and apparatus and as the new headquarters and aviation stations for both services are constructed there will be needed extensive requirements for telephone service. These new concentration points

and airfields are to be determined in the near future after Congressional enactment of the defense appropriation measures.

WHILE the telephone industry is ranked as probably the best prepared from a national defense standpoint in the country, to meet a war emergency there are certain sections of the Nation that will require the construction of additional wire plant and facilities to meet military requirements and especially to establish adequate air-raid warning systems. These regions are the sparsely populated areas of the country where normal peace time needs are being satisfactorily served but are below parity for war emergency purposes. The Southwestern states along the Mexican border loom as one such area, while to a lesser emergency extent the same situation prevails in the states along the Canadian border, both in the Northwest and in the Northeastern sections of Maine and New York. On the Pacific and Atlantic Coasts there are similar areas with a possible lack of necessary military emergency telephone facilities, but in those regions this need is remedied to some degree by the coastal telephone network of the Coast Guard, which totals some 3,000 miles. The recent maneuvers of the regular Army in East Texas and Louisiana brought to light some conditions of the huge load placed on the telephone systems under war conditions, but carrier current systems in the wire plant where available were found most helpful in increasing the plant capacity.

In the sparsely populated regions, the telephone systems are operated in many cases by the smaller Independents and farmer mutual companies and it is thought that to rehabilitate these networks for military needs the Army may engage in a considerable amount of construction activities itself. To establish the most efficient setup for the military purposes it also is deemed likely that many communities linked by indirect routes to the toll networks may be joined by direct wires under the Army planning. In the case of extreme emergency or actual war engagement the local telephone systems would be naturally taken over by the Army for the duration of such situations.

Amateur Radio Communications to Foreign Nations and All Portable Operations Banned

THE most drastic move by the Government in imposing emergency conditions on communications came in early June when the FCC placed an immediate ban on the use of all amateur portable and mobile stations in the United States, its territories and possessions except those using the short-range frequencies above 56,000 kilocycles. The prohibition of amateur radio communication by the 55,000 American "ham" operators with foreign nations was aimed to a major degree to aid the Government in patrolling the ether to stop operations of any unlicensed stations engaged in espionage or other harmful activities. Despite press reports the FCC action was not directed against any "fifth column" activities of American amateurs, all of whom are American citizens and must observe Commission regulations under their licenses.

The prohibition against amateur radio communication with foreign nations did not affect "ham" operations between the United States and its territories and possessions, including Hawaii, Alaska, Canal Zone and Porto Rico and also

(Please turn to page 34)

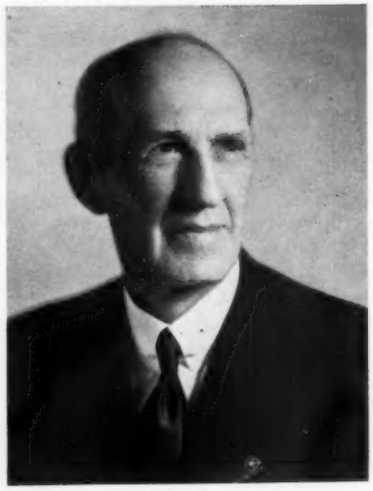
CONVENTION DATES

California Independent Telephone Association, Miramar Hotel, Santa Monica, June 20 and 21.

Oregon Independent Telephone Association and Washington Independent Telephone Association, Gorge Hotel, Hood River, Ore., Joint Meeting, June 28 and 29.

North Dakota Telephone Association, Gardner Hotel, Fargo, July 12 and 13.

Michigan Independent Telephone Association, Hotel Olds, Lansing, July 24 and 25.



John A. Balch

MR. JOHN A. BALCH, President of Mutual Telephone Company, was honored at a large luau (native Hawaiian feast) upon the occasion of his retirement from active service March 29, 1940. He was presented with an oil painting and a silver tea service by the directors and employees of the Company. Approximately 800 persons attended the luau which was given in real Hawaiin style with plenty of poi, squid, and other Hawaiin delicacies. In all 1,061 pounds of roasted pig were consumed. Music and hula dancing were furnished by the Royal Hawaiian Group and the Telephone Company's own fourteen piece orchestra. After the musical program, congratulatory telegrams were read from high officials in the communication world including General James G. Harbord, Chairman of the Board R.C.A., David Sarnoff, President of R.C.A., Walter S. Gifford, President, American Telephone & Telegraph Company, T. C. Thompson, Vice-President of American Automatic Electric Sales Company, and many others.

Mr. Balch's retirement ended a period of thirty-three years of service with Mutual Telephone Company, fourteen of which he served in the capacity of President. Mr. Balch accepted the position of Chairman of the Board of Directors. Mr. Alvah A. Scott succeeded Mr. Balch as President and was also re-elected General Manager of the Company.

Mr. Scott, a native son of Hawaii, was born at Wainaku, Hawaii, May , 1887. He completed his education at Cornell University and graduated in mechanical engineering in the class of 1908. He has had prior experience in the communications field, having been a director of the old Hawaii Telephone Company during his residence in Hilo. He brings to Mutual Telephone a broad background of successful business and engineering experience as well as an outstanding record of achievement in personnel management.

Alvah A. Scott

Short Course in Telephone Transmission

By
B. C. BURDEN

Subject: Carrier Telephone Circuits

—Continued from May Issue—

Characteristics of Vacuum Tube Modulators

IN the May issue some of the general features of modulation in a carrier current system were discussed. It was stated that in order to **modulate** or impress upon the locally generated carrier wave the audio telephone frequencies that a vacuum tube with sufficient negative bias to cause it to operate on the lower bend of its plate current-grid voltage characteristic curve was required. It was further stated that in the plate output circuit of the modulator tube that there would be present several different frequency components, other than the desired modulated-carrier frequency. With **C** and **V** representing the carrier and voice frequencies respectively there would be present in the output circuit the following components:

V—Voice frequency
C—Carrier frequency
2V—Twice voice frequency
2C—Twice carrier frequency
C—V—Carrier frequency minus voice frequency
C+V—Carrier frequency plus voice frequency

All of the above component frequencies not useful in the transmission of signals via the carrier current method are of course filtered out and are not impressed on the line in the modern carrier system. Figure 3 illustrates schematically a vacuum tube modulator and shows graphically how the combination of the voice and carrier frequencies applied to the grid of the modulator tube beat together resulting in the carrier current being **amplitude modulated** by the applied voice frequency. It will be observed in Figure 3 that all components except the desired modulated carrier frequency are filtered out and do not reach the line.

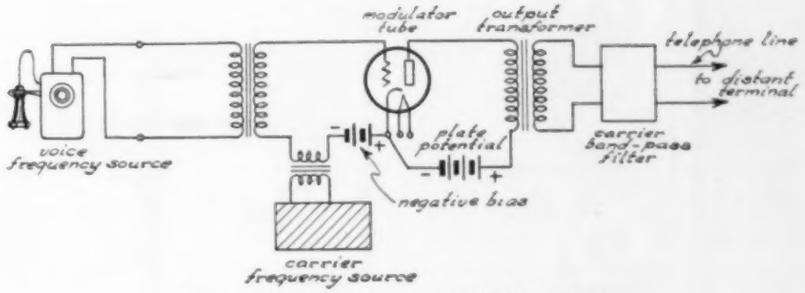


Fig. 3—Elementary Schematic Modulator Circuit

To further illustrate the fact that several components are present in the output circuit, let us assume that in the practical modulator circuit as shown in Figure 4 we are generating a local carrier frequency of 20,000 cycles, and that we impressed from the voice frequency channel a 1000 cycle tone. These two frequencies would beat together in the grid circuit and there would appear in the plate output circuit the following frequencies:

V—1000 cycles
C—20,000 cycles
2V—2000 cycles
2C—40,000 cycles
C—V—20,000—1000 or 19,000 cycles
C+V—20,000+1000 or 21,000 cycles

If a band pass filter was used which would pass all frequencies from 19,000 to 21,000 cycles there would be present on the line the carrier minus voice, carrier plus voice and the carrier itself. All other frequencies, such as voice, and twice voice, and twice carrier would be filtered out. If instead of a constant tone frequency ordinary telephone conversation whose frequency range extends from 200 to 3000 cycles was impressed on the modulator tube then the carrier frequency would fluctuate between 17,000 and 23,000 kilocycles rather be shifted by only the 1000 cycle frequency. It should be appreciated that the useful components resulting from modulation are either the carrier

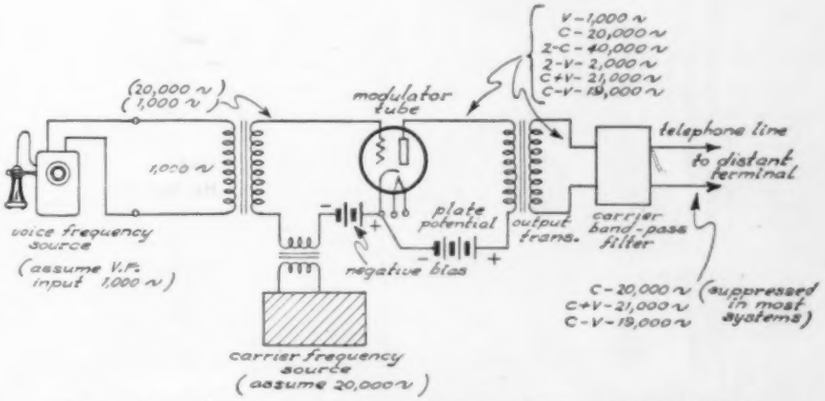


Fig. 4—Practical Illustration of Various Frequency Components in Modulator

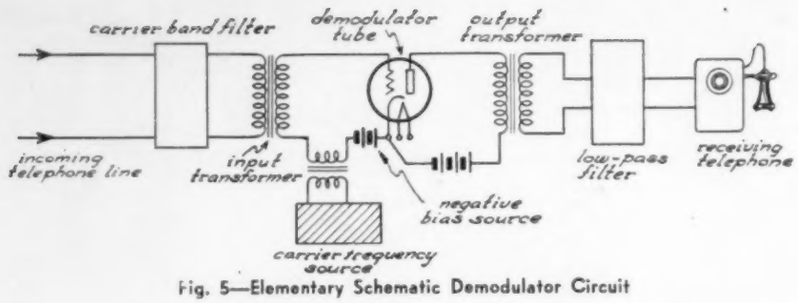


Fig. 5—Elementary Schematic Demodulator Circuit

minus voice or carrier plus voice frequencies. These are usually referred to in technical literature as the **upper and lower side bands** and as was previously mentioned either of these components may be transmitted to the receiving end of the line and will serve as a transmission channel.

In the early carrier systems, both side bands and carrier were transmitted however, most carrier systems suppress all components except either the **upper** or **lower side band** frequencies. The carrier must be supplied in such systems at the receiving end of the line.

Action of the De-Modulator

Let us follow the carrier current to the distant end of the line where it must pass through what is known as a **de-modulator** which will convert the high frequency carrier signals back into the usual voice frequency signal which can then be transmitted to the listening telephone. The de-modulator is in effect a modulator in reverse. Fig. 5 shows an elementary circuit of a de-modulator.

Let us assume that only the upper side band has been transmitted over the telephone line. We will therefore need to supply at the de-modulator a carrier frequency precisely the same as that at the transmitting end of the line. This locally generated carrier beating in the grid circuit of the de-modulator tube with the incoming upper side band frequency will cause to appear in the plate output circuit of the vacuum tube a number of components similar to those that appear in the output circuit of the modulator stage. It should be noted that the de-modulator tube like the modulator tube must be biased to operate on the lower bend of the grid voltage-plate current characteristic curve.

In the plate circuit of the de-modulator tube there will be present the following components.

C—The locally generated frefrequency.
C+V—Incoming upper side band frequency.
2C—Twice the locally generated carrier frequency.
2(C+V)—Twice the incoming band frequency.
(C+V)+C—Carrier plus incoming side band.
(C+V)—C—Carrier minus side band (voice frequency).

To further illustrate the action of the demodulator Figure 6, using the same values as were given in the modulator example illustrates how the upper side band received from the distant terminal is converted back into the voice frequency signal. Assuming that the incoming frequency is 21,000 cycles (upper side band) there will be the following frequencies in the plate circuit:

C—Locally generated 20,000 cycle carrier.
C+V—21,000 cycles incoming upper side band.
2C—40,000 cycles
2(C+V)—42,000 cycles
(C+V)+C—41,000
(C+V)—C—1000 cycles (the original voice frequency)

The low pass filter in the plate circuit eliminates all but the voice frequency which then passes on to the receiving telephone.

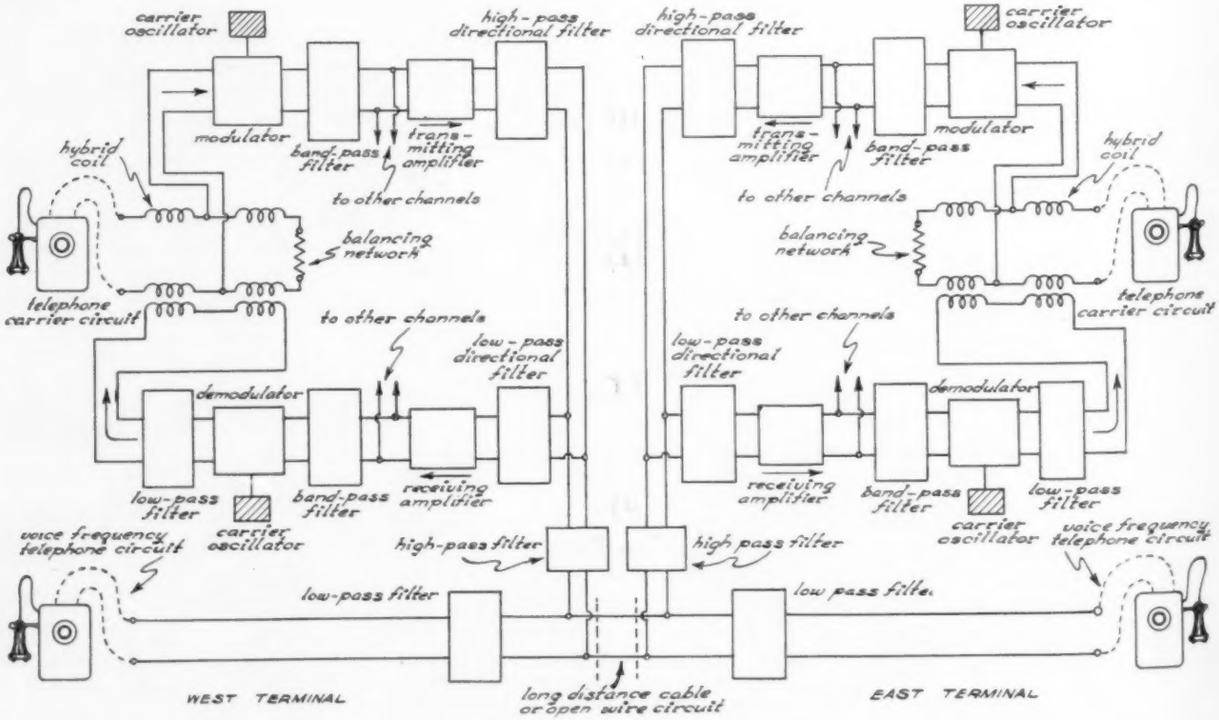


Fig. 7—Block Diagram of Multi-channel Carrier System

Complete Carrier Systems

There are in use today on the major long distance lines in this country several distinctly different types or classes of carrier circuits. These systems which have been developed and brought to a high state of perfection by the **Bell Telephone System** are known as **type D, type C, type J, and type K.**

Of the several systems the **type D** is is the simplest and is a single channel system developed primarily for relatively short distances (100 miles or less) though capable of use on longer distances in conjunction with amplifiers. The **type C** system permits three channels on each pair of wires and is suited for long distance circuits of lengths in excess of 100 miles. The **type J** is a relatively new system and permits 12 carrier channels on one open wire pair. The **type K** is a multi-channel system suitable for use on toll cables. All of the systems suppress the carrier and transmit only one side band. Figure 7 illustrates in block diagram form the principal components in a complete multi-channel system. It should be noted that only one channel is shown.

Referring to this figure and following through from the west to the east terminal let us examine the function of each of the various units. First assume that some one at a west terminal is talking to a subscriber at the east terminal. The incoming voice frequency signal is combined with a locally generated **carrier frequency** and as a result there is developed the various component frequencies previously described.

Of all the frequencies generated, only the **upper side band** would get through the band pass filter. (Note—The carrier is suppressed by a special circuit arrangement not shown.) The side band frequency is then passed through a **transmitting amplifier** which raises its amplitude suffcient to overcome line attenuation. From the amplifier the side band is passed through a **high pass directional filter** whose purpose is to separate the transmitting and receiving signals inasmuch as the group of frequencies used for transmitting from west to east is widely different from those used in transmitting from east to west, thus the directional filter permits the separating of the receiving and transmitting signals at each terminal. The upper side band frequency after passing through the high pass directional filter then goes through a **high pass filter** which will pass all frequencies above the voice frequency range. The signal thus reaches the line and incidentally is prevented from going back into the ordinary telephone circuit due to the presence of the **low pass filter** which permits frequencies only below the carrier range to enter this circuit. The side band carrier frequency then travels to the distant terminal on the same line that is used for ordinary voice frequency communication.

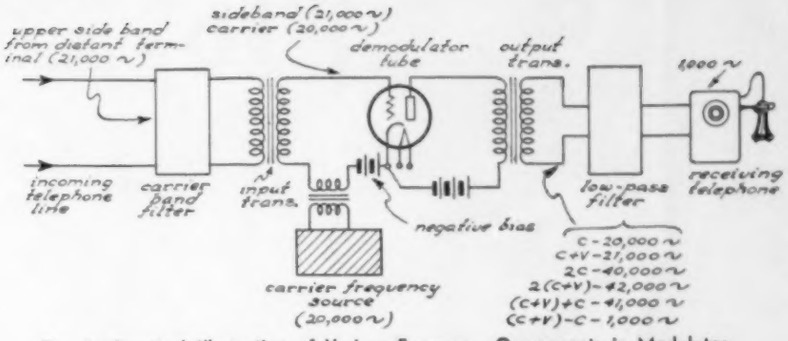


Fig. 6—Practical Illustration of Various Frequency Components in Modulator

The Receiving Terminal

Arriving at the east terminal the side band frequency is kept from entering the ordinary telephone circuit due to the presence of the **low pass filter** but being in the carrier frequency range can pass through the **high pass filter.** Here the **upper side band frequency** enters the **low pass directional filter** into the **receiving amplifier** and it should be noted that this west to east signal is unable to get into the transmitting amplifier because of the presence of the **high pass directional filter.** The receiving amplifier boasts the incoming attenuated carrier signal and then passes through a band filter and into the de-modulator. The band pass filter prevents frequencies other than the desired voice frequency then passes entering the de-modulator. At the output of the de-modulator a low pass filter separates the various components from the desired voice frequency and the desired voice frequency the passes on out through the three winding transformer and on to the receiving telephone. The three winding transformer prevents the transfer of energy from the out put of the de-modulator back into the input of the transmitting modulator. (Same principal as used in repeaters.) Transmitting and receiving circuits of other channels of the system are bridged on at the point indicated in the diagram. Where carrier systems are bridged on at the point indicated in the diagram. Where carrier systems are used over distances beyond their normal range it is necessary to utilize what is known as **carrier repeaters** in order to boost the weakened signal at periodic points along the line.

I WONDER WHY SOMEONE DOESN'T INVENT

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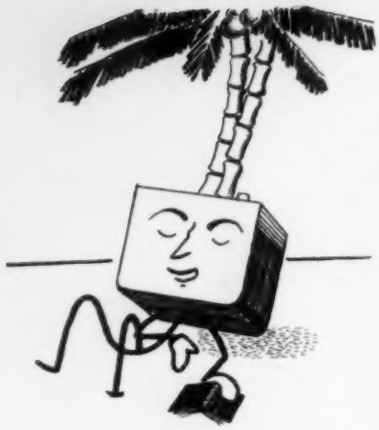

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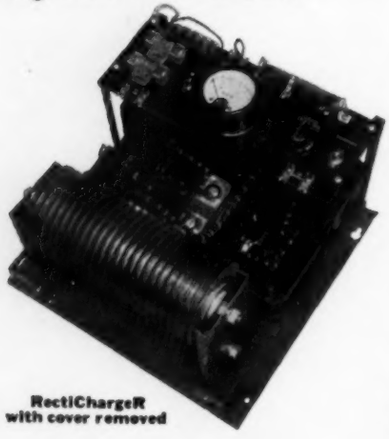

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Association Activities

(Continued from page 16)

ral installations. The entire program was a credit to the efforts of the officers and especially to Mr. Beck.

Pennsylvanians Hear W. H. Harrison

Convening in York, Penn., on May 16, 17 and 18, the Pennsylvania Telephone Association held their 38th annual meeting to a record attendance of 400. They heard addresses by: John Siggins, Jr., chairman of the Pennsylvania Public Utility Commission; W. H. Harrison, vice president and chief engineer, American Tel. & Tel. Company; J. F. Stockwell, association vice president; G. S. Herbert, association president; Louis Pitcher, and many others that addressed the various conferences. Demonstrations were also presented by the various groups.

Claude Bennett, Wellsboro, and Ames E. Brown, West Springfield, were announced as directors by Mr. Herbert to serve in place of J. C. Scott and A. M. Gibson, resigned.

Ray Blain, feature writer and editor of our Line & Desk column was in attendance and furnished the pictures reproduced in this issue. Group conferences under the direction of a standing committee. Mr. E. H. Dillon, Auditor of the Pennsylvania Telephone Corporation, Erie, is Chairman of the Committee on Auditing and Accounting; Mr. R. A. Smith, Vice President of the Blue Mountain Tel. and Tel. Company, Bangor, is Chairman of the Committee on Commercial Practices; Mr. Dan Sites, Cable Foreman of the York Tel. and Tel. Company, York, is Chairman of the Committee on Plant Methods; and Mr. L. R. Thurston, General Commercial Manager of the United Telephone Company of Pennsylvania, of Harrisburg, is Chairman of the Committee on Traffic Practices.

A Round Table discussion was held the morning of the last day with all in attendance joining. Much praise was given H. M. Stewart, executive secretary, on the arrangements and program presented. Officers elected in January of this year are: president G. S. Herbert; vice presidents, Mr. Stockwell and H. M. Engh; executive secretary, H. M. Stewart; secretary, Miss M. E. Cunningham, and treasurer, George B. Rudy, Jr.

Badgers Select Wm. E. Lawton

The Wisconsin State Telephone Company convened in Madison on May 22 and 23 with an attendance just less than 500. Wm. E. Lawton, Viroqua, was elected president; E. M. Blakeslee, vice president; A. H. Bowden, secretary, J. E. Byrne, recording secretary, and C. A. Blair, treasurer.

J. I. Kennedy, Freeport, Illinois. New leader of Illinois Association.

In keeping with an address by Lieut. Col. Harrison Garner, Madison, the platform was decorated with an American flag. Garner welcomed the convention to Madison and then warned of the effect "fifth column" agents could have unless weeded out immediately. Retiring president Herman E. Hoerl, Marshfield, especially stressed the necessity of maintenance and improvement of rural service in his address.

Among other speakers were: Mr. Byrne; Mr. Blakeslee, who as connecting company agent for the Central Group Operating Companies, General Telephone Corporation, Madison, announced that on July 1, a new contract would go into effect whereby additional compensation will be paid by the Wisconsin Telephone Company; Mr. Pitcher, Chicago, who spoke on the "National Situation"; Harry B. McMeal, Chicago; Fred H. Runkel, Madison; R. M. Matteson, Black River Falls; John Touhe, Madison; and Prof. Asher Hobson, Madison.

The Wisconsin association held a traffic conference for the first time in many years and were rewarded by very satisfactory attendance.

J. I. Kennedy to Lead Illinois Association

The 36th annual convention of the Illinois Telephone Association was held in Peoria on May 28 and 29. J. I. Kennedy, Freeport, was elected to president; L. R. Mapes, Chicago, vice president, and A. J. Parsons, Springfield, was re-elected secretary-treasurer.

Retiring president, R. B. Still, of Bloomington, reviewed the Association year in his address, giving unusual

mention to the trade publications for the unusual work they have accomplished for the industry. He also presided at a very interesting Round-Table where five speakers were presented with a wealth of informative material that was given in answer to specific questions from the chair.

Carl Taylor, Milwaukee, gave one of the feature addresses and was well received. Mr. Taylor is no stranger to telephone men as those attending the National Association Convention two years ago will testify. Other addresses were made by: Mr. Parsons; Ben B. Boynton, association general counsel; Mr. Pitcher, and H. F. McCulla, Lincoln, Nebr.

The Plant Conference conducted by O. R. Roach, Bloomington, heard on their program a discussion on Buried Wire by George W. Wopat, Pontiac; a treatise on Cable Repairs by Gilbert Klein, Mt. Sterling, assisted by J. B. Cherry and Joy Stevens, and H. M. Altepeter, St. Louis, who presented a paper on Long Span Construction.

The Traffic Program was called to order by Mayme Workman who was followed by J. F. Reding, Springfield and Anne Barnes, Des Moines. That afternoon the conference was addressed by Geraldine I. Wharry, Peoria; C. J. Janecek, Peoria; J. G. Hardy, Springfield, and G. C. Jones, Springfield. On the second day Mrs. Workman presented "Telequiz" and officiated as Professor Askem. Five tributary contestants and five Toll Center contestants were quizzed with prizes being offered the winners.

The banquet and dance was well attended and enjoyed. Entertainment during dinner was excellent with many joining in a sing-song. Attending the convention as guests of president and Mrs. R. B. Still were Mr. and Mrs. Oscar Burton, of Texas. Mr. Burton is president of the Texas association.

New York Chooses Lloyd C. Wright

Termed as the 38th Anniversary convention of the Industrial Statesmen of the New York State Telephone Association, New York state telephone men met in Syracuse on June 4 and 5, heard a well planned program, elected Lloyd C. Wright, Jamestown, as president to succeed John P. Boylan, Rochester, adjourned.

The well planned program included general sessions, traffic and plant conference, a pre-convention golf tournament and the annual banquet and entertainment. Malcolm Griswold was chairman of the golf tournament. Secretary Arch MacKinnon and the officers were congratulated on arrangements.

Lloyd C. Wright, Jamestown, New York, selected to lead New York Association.

Speakers heard at the convention were: Mr. Boylan; Mr. MacKinnon; Charles T. Maddocks; Emmet D. Talbott; Ward E. Hinman; Don F. Davison; J. C. Nash; Robert M. Bruce; C. C. Deering, and Eugene J. Benge.

As usual, the manufacturers and suppliers to the Independent telephone industry did their part in making all of these conventions a huge success. Their willingness to exhibit their products at heavy expense does much to make these meetings well attended. We suggest that Independents favor these exhibitors in their purchases for the service they render the industry.

Father's Day

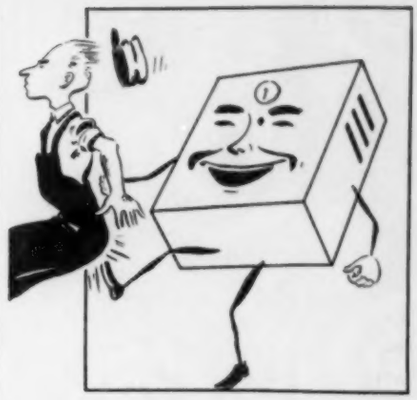
At long last "Pa," who has been paying the telephone bills all these years, is getting official recognition by the telephone company.

The new central office opened recently by the Northwestern Bell Telephone Co. in South Minneapolis is known as Parker and the call letters are PA.

R. F. Wilder Retires

After nearly 40 years as a telephone company employee and executive in the northwest, R. F. Wilder, general manager of the Tri-State Telephone and Telegraph Co., St. Paul, retired on June 1.

He entered employ of the Northwestern Telephone Exchange Co. in August, 1901, and in 1906, joined the Tri-State. He has been with that company since.



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LINE and DESK

RAY BLAIN, Editor

Q. Will you advise us as to whether No. 6 iron wire is considered suitable for use in guying an open wire rural line?

A. A wire of this type may be used for the guying of such a line though we would not consider it completely satisfactory. We prefer to make use of ¼ or ⅜" steel messenger strand with 2 or 3-bolt guy clamps for all such guying. The messenger strand is not only stronger but does not stretch and slack-off as does the wire.

Q. Is it possible to make use of the ordinary thimble eye bolt for both overhead and down guys on aerial cable construction?

A. Ordinarily the bent eye bolt is used for attaching down guys to poles and the straight eye bolt for overhead guys as from a line pole to a guy stub. Thimble eye bolts may be obtained in both types.

Q. Please advise how the tension on a relay contact spring may be measured accurately?

A. This may be accomplished by the use of a special tool called a gram gauge or scale. This tool consists essentially of a frame on which is assembled an indicating spring, a handle and an adjustable tension attachment. The scale is generally calibrated 50-0-50 grams, graduated in 5-gram divisions.

Q. Will it be possible to bury a tape armored telephone cable and a tape armored power cable in the same trench safely and if so how much separation between the two should be provided?

A. This may be done with safety providing a separation either vertically or horizontal of not less than 12-inches of well tamped earth or 3-inch of concrete is provided. It is also desirable to cover the power cable with a creosoted plank to provide further protection and to identify it in the making of repairs.

Q. When pulling-in aerial cable around a slight corner what precautions should be taken to prevent injury to the cable?

A. When the corner is so located that the cable pulls away from it, rollers of the type which clamp on the messenger should be used to prevent the cable from riding the rings and pulling them off the strand. When the cable rides on the pole around one of these slight corners, it should be protected by a rope mat kept properly lubricated.

Q. Why are guard arms used on aerial cable construction and how should they be installed?

A. Guard arms are used on joint construction and are placed on the pole just above the messenger strand and parallel with it. The guard arm is usually considered necessary when the cable is located about 40-inches from the nearest power carrying wire. This guard arm serves as a protection from ground for the lineman working on the joint lead. When clear climbing space is required, which is always desirable on joint construction, the telephone drops may be attached to the ends of the guard arm instead of the pole.

Q. What is a manhole sheave and how is it used in telephone construction?

A. The one ordinarily used is a 2-pulley sheave which may be placed on the edge of the manhole cover and by the use of a snatch block carries the winch line from the conduit to the truck for pulling-in underground cable. This arrangement generally proves more satisfactory than the manhole skid method. The large pulley of this sheave is 7¾" in diameter and the small one 4¾" and both have a width of 3". These pulleys will handle any cable up to 3" in diameter. The complete sheave is "L" shaped about 20" one way and 13" the other and weighs 96-pounds.

Q. What type markers are recommended for use to indicate the route of a buried cable and how should they be used?

A. A square concrete pillar about 4-inches square and 3-feet in length with a metal insert on which is stamped the necessary data will ordinarily be considered satisfactory. These markers should be set in the ground with about a foot of the top exposed. Markers should be placed to indicate splices and turns in the cable and at all other locations necessary to identify the route in order that the cable may be located quickly for maintenance purposes.

Q. Would it be possible to obtain a multi-conductor, rubber insulated, lead covered cable with fairly large copper conductors for use on a special communication problem?

A. It is believed that signal cables commonly used on fire alarm systems operating at 600-volts or less would satisfactorily meet your needs. These cables are manufactured with copper conductors from No. 1 to No. 18 AWG gauge. The insulation consists of high-grade, heat resisting, long life rubber, with a 64th inch thickness. The lead sheath placed over the conductor assembly is an alloy, made from pure lead and from 1.8 to 2.2 percent tin. The sheath is from 4/64 to 8/64 inch thick.

Q. What precautions should be observed in the maintenance of the sealed glass jar storage battery?

A. Actually these batteries are very easy to maintain and require very little attention. However, a few simple rules should be observed to insure maximum life and service. One precaution against the entrance of impurities is to add nothing except pure distilled water to replace evaporation in the cells. Keep the battery and its inter-cell connectors clean and dry. Keep all vent caps tight to prevent creepage of the acid. Should any electrolyte be spilled or if the cell covers become wet, they should be cleaned with a rag moistened with ammonia or a solution of baking soda.

Q. On aerial cable construction should the cable terminal be located above or below the messenger?

A. The plan most generally observed is to mount the top of the terminal 24-inches below the messenger strand. The drop wires may then be attached to the pole above the messenger to provide proper clearance.

Q. Will you please explain the necessity for a brick collar on a concrete manhole?

A. This permits easy lowering of the cover in case of a change of grade for the street. When a brick collar is not provided the lowering of a cover on a concrete manhole is an extremely difficult and expensive operation.

Q. Is the use of special tree wire for aerial lines considered cheaper than trimming a tree clearance?

A. Aerial lines should be routed to clear all trees when possible. When a lead cannot be routed to clear trees then a clearance should be trimmed. When a clearance cannot possibly be obtained in any other manner then special tree wire should be used as a last resort.

Believe me—it takes more than a bloodhound to find a telephone engineer who wouldn't rather have

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Western Electric

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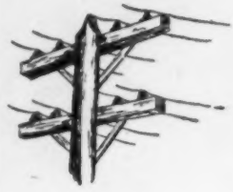
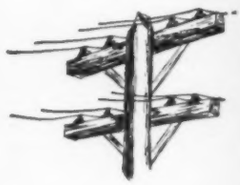


LONG LINES

R. A. Clark, Jr.



A NEW RINGING SELECTOR

A SELECTOR for use on magneto type telephone circuits has been recently developed and will be of interest to companies employing this type of circuit. The selector provides a means of calling anyone of a group of telephones connected to a party line circuit. It operates on combinations of long and short rings and provides selection up to six rings total.

The selector consists of a D-C solenoid controlled by a sensitive A-C relay such as the FQA or the Telecode. The solenoid windings can be operated from any D-C source ranging from 3 volts up. Two dry cells will give long life and can also be used for the bell or buzzer circuit associated with the selector. Fig. 1 shows the selector mechanism with the cover removed and Fig. 2 with the cover in place. The unit may be mounted either in a vertical or horizontal position, however the horizontal position is preferable.

The selector can be used in a number of ways. For one telephone on a party line a simple arrangement of an A-C relay, selector and bell is sufficient. Where there are a number of lines entering a station it is often desirable to have an annunciator to show on which circuit the ring occurs. The circuit diagram for such a system is shown in Fig. 3. Wiring is shown for three lines, however the same arrangement can be extended to as many as desired. On circuits terminating in a PBX the selector can be associated with a ring repeating circuit so that the PBX operator will get a lamp indication only for the code assigned to that station.

The selector unit has been given a thorough field trial and little difficulty has been experienced in training the station operators to ring each other properly.

Adjustments are provided so that the long ring can be made a definite minimum time. It is then merely necessary to see that the operators ring the longs more than this minimum and the shorts less.

Fig. 1. Ringing selector with cover removed.

Fig. 2. Selector and cover.

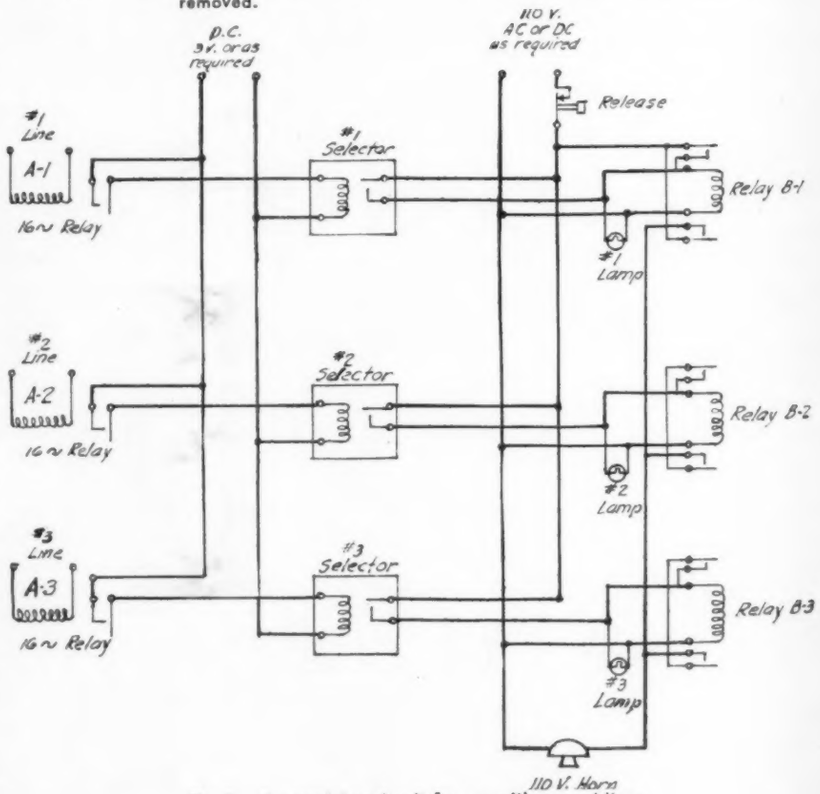


Fig. 3. Annunciator circuit for use with several lines.

Trailers in Telephone Construction

(Continued from page 18)

(Above) The Chance trailer loaded with poles. (Below) The Chance trailer in operation.

hundred to sixty-two hundred pounds, according to the size desired, and has a rated carrying capacity of from six to ten tons. These trailers are of the low mounting type which makes them especially desirable for the loading and hauling of heavy objects.

Light weight four-wheel trailers often prove especially desirable for the transportation of men when a large crew must be used on a particular job. The average telephone construction truck when loaded with tools and material has very little space available for the hauling of men. When a large crew must be transported, the four-wheel trailer permits men to ride in both comfort and safety. The regular truck may then be utilized for the transportation of regular tools and supplies. When a trailer is used regularly for the transportation of men in all kinds of weather, a suitable covering should be provided. Seats are also a necessity to provide safety and comfort. Folding seats hinged along each side may be provided when the trailer must be used for other than transportation of men. Power brakes of an approved type are ordinarily considered a necessity on a trailer of this type.

The Pay Station Trailer

NUMEROUS large telephone companies now have special pay station trailers equipped with several booths and a desk for an attendant which they keep avilable for installation to provide temporary telephone service on short notice made necessary by large gatherings and disasters, such as storms and floods. These trailers prove not only a great convenience for the public but also a revenue earner for the company concerned. These trailers are generally the two-wheel type of the house or pleasure variety and may be hauled behind an ordinary automobile. Telegraph companies have also made considerable use of this type trailer for a similar purpose.

The Chance Trailer

WE recently received a description of a most interesting trailer from Mr. Wallace Chance of the Central Iowa Telephone Company, of Melvin, Iowa. This trailer is of the light weight variety and may be easily hauled behind an ordinary automobile, although it will carry several fairly large poles with ease and safety. However, the unusual feature of this trailer, in our opinion, is that it is equipped with a pole derrick. Mr. Chance states that this derrick may be used to set thirty foot poles with ease and that twenty-five and thirty foot poles have been pulled out of the ground with the same derrick. The derrick may be raised and lowered by means of the telescoping third leg.

The power for this particular derrick is obtained from a transmission on a drum, but it is believed that an arrangement could be designed to utilize

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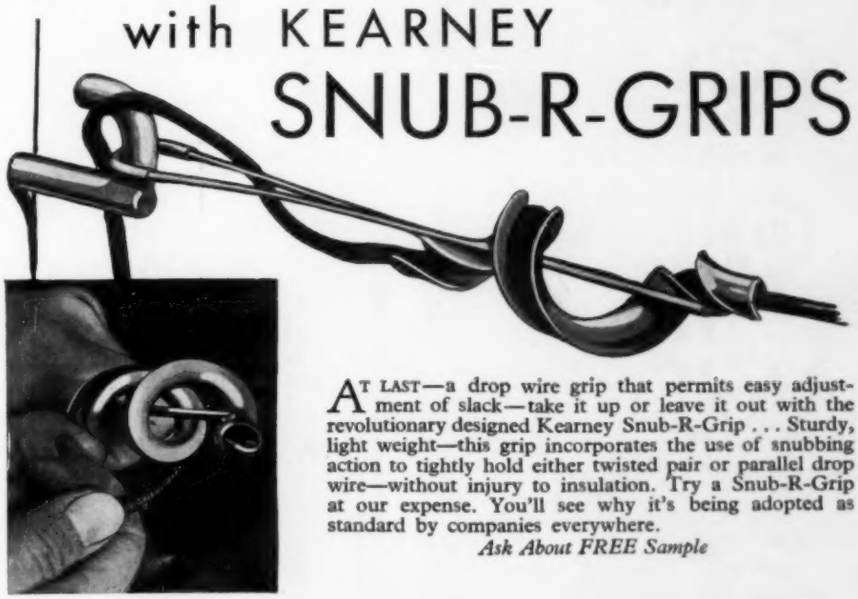

AT LAST—a drop wire grip that permits easy adjustment of slack—take it up or leave it out with the revolutionary designed Kearney Snub-R-Grip . . . Sturdy, light weight—this grip incorporates the use of snubbing action to tightly hold either twisted pair or parallel drop wire—without injury to insulation. Try a Snub-R-Grip at our expense. You'll see why it's being adopted as standard by companies everywhere.

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power from the take-off of a truck with even better success. Also, a hand operated winch mounted on this small trailer could undoubtedly be used to advantage in the erection of small poles by the average independent telephone company.

Mr. Chance mentions that he finds this trailer and derrick most convenient for all his pole work and that he experiences no difficulty in backing it off the road and down into ditches as is necessary to reach the average pole as located in rural districts. The ball and socket hitch is used for attaching the trailer to the automobile. The cable used on the derrick is of three-eighths inch steel with eleven thousand five hundred pounds breaking strength. When poles are being hauled on the trailer, the derrick folds down over the load in such a manner as not to cause trouble. It does seem a pity that this combination trailer is not manufactured and placed on the market, but until such time as they are available, there is no doubt but that ingenious men like Mr. Chance will undoubtedly fabricate them locally from parts purchased at a low cost from automobile junk yards.

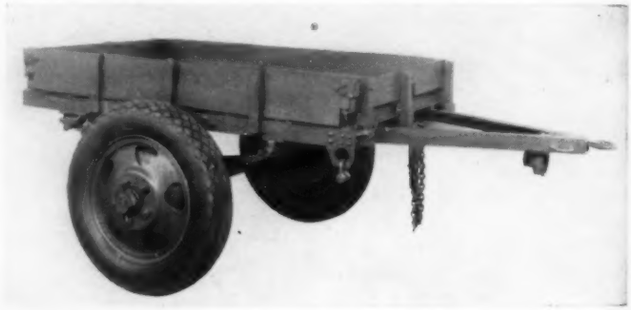
Small Two-Wheel Hand Trailers

SMALL light weight pneumatic tired trailers may often be used to advantage in the moving of heavy objects where space will not permit the use of a regular truck or large trailer. Small trailers of this type equipped with reels are most useful on numerous small wire stringing jobs. This small reel cart is especially useful for drop wire work when a reel mounted on a regular installation truck is not available. A small tool box trailer may also be used to advantage for sub-station installers and who may be moved by the large truck from one job to another. This small pneumatic tired trailer should not be confused with the old high iron wheeled push cart at one time used by installers in many small exchanges. These new type of hand trailers may be handled, even when loaded, with comparative ease.

Hauling of Small Trailers

SMALL trailers such as the cable splicing type cannot be hauled behind trucks at high speeds for long distances with any degree of safety. This small, light weight and narrow trailer usually sways considerably from side to side and bounces on rough highways. When small trailers must be moved long distances, it always proves desirable to haul them either on a truck or a larger trailer. There are many methods which may be used in loading and hauling trailers although, due to limited space, only a few of them will be described here.

When a small trailer is to be loaded on a larger truck, it may be rolled up skids, which are equipped with low sides, to prevent the wheels from running off the edges. The winch line may be conveniently used to pull the trailer up the skids and into the truck where the wheels should be chocked and securely lashed in place.



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A special combination type of trailer which has a pay load carrying capacity of 1500 pounds. This trailer is especially suited for hauling poles or other telephone materials.

Often when a construction crew must move a considerable distance, it is necessary to transport both a cable reel trailer and a cable splicing trailer on the cable reel trailer. This may be accomplished by placing shoes, constructed of either wood or metal, on the cable reel trailer on which the tires of the small trailer rest. Clamps may be used to hold the tires in place in the shoes and another clamp will hold the tongue of the small trailer firmly in position on the front cross-member of the cable reel trailer.

The loading of the splicing trailer may prove extremely difficult when not approached in a proper manner. While short skids may be used, we have learned that the best method is to place a sling on the trailer and lift it with the power winch and the pole derrick. The cable reel trailer is then rolled in position under it and the small trailer lowered into place. The unloading may be accomplished with the same arrangement, action being reversed.

Telephone Trailers in General

WE have attempted to describe all types of general purpose trailers though we feel sure that there are many special types in use which have not been heard of outside a particular community. Telephone men always had good and original ideas on things concerning their work and in this we will wager that trailers are no exception. We knew of one telephone man years ago who built a trailer and equipped it with a large electro magnet powered by a gas engine generator for use in picking up nails which punctured tires of automobiles from the streets of the town. This is mentioned only as an example that telephone men do have good and original ideas. It is hoped that everyone who has built a special trailer of any type which has proved beneficial to him in his work will send us a snapshot and a brief description of the construction details in order that others may benefit therefrom.

—END—

Floods in Nebraska

Six northeast Nebraska counties on June 4, felt the lash of flood waters.

Damage mounted by thousands of dollars, **with shattered communication facilities** preventing any adequate assessment of the loss of life or property.

Tales of heroism and devotion to duty were heard everywhere. **As usual telephone operators stuck to their posts and kept their switchboards operating as long as possible.**

Outstanding heroine probably was Mrs. Nellie Lagrue, a relief operator at Winnebago.

When the storm struck, Mrs. Lagrue kept busy sending out warnings. As the water got higher and higher, her neighbors, Mr. and Mrs. Dave Hinman, waded to the office to try to induce her to leave. She refused. The water by that time was so high the Hinmans could not leave the building.

The water got higher and higher and finally the four, together with the Hinman dog, "Corky," and another dog, "Wiggles," which had wandered into the telephone office, were forced to climb on top of the switchboard.

They had with them only an alarm clock and a flashlight, whose battery was so weak they could use it only for a short time. At dawn they saw nothing but water around them and it was nearly noon before they could leave the place.

Northeastern Telephone Company operates at Winnebago.

Alabama Properties Are Sold

Dothan, Ala.—May 23—The Southeastern Telephone System owning and operating lines and exchanges in Geneva county has sold their interests to the Standard Telephone and Telegraph Company of Dothan and Troy.

The new owners contemplate installation of new equipment where needed just as rapidly as possible, and the rebuilding and reconstruction of all lines.

Since coming to Dothan as manager, about three years ago, G. R. McKelvey has kept a crew constantly busy putting into cables loose lines and arranging to care for an ever increasing list of subscribers.

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"Tapping In" on Washington

(Continued from page 19)

taking in the Philippine Islands. The action of the FCC was immediately accepted by the American Radio Relay League which considered it to be in line with the amateur's self-imposed code of neutrality and emergency regulation. Major K. B. Warner, the League's Executive Secretary, stated that the order was only a comparatively small increase over the ARRL's own code and would result in no practical change or hardship on amateur operations. It was brought out that there was practically no amateur activity between the United States and Europe because of the war and there were only around 5,000 "hams" in Latin America and less than 1,000 in the Orient. Thus the bulk of the world's amateurs—those in the United States and its possessions—were not affected.

In fact, the FCC prohibition held as its most important phase the banning of communication by amateurs in such strategic military and naval points as the Canal Zone, Hawaii and Porto Rico. The elimination of the foreign amateur activities in those points would greatly aid the guarding against unlicensed wireless communication that would be extremely harmful to the national defense, it was felt.

State Commissioners Offer Cooperation in National Defense

AN indication that the regulation of utilities by the state commissions would be largely held in abeyance because of the defense emergency was given in a telegram to President Roosevelt from Harry Bacharach, president of the National Association of Railroad and Utilities Commissioners and head of the New Jersey Commission, in offering the full cooperation of his organization to aid in the present situation.

State regulatory commissions, his message cited, know "no state lines where national interests are at stake, though otherwise zealous to maintain state control of matters that in our judgment under normal conditions and viewed from any standpoint other than that of natiotnal preparedness are primarily of state as distinguished from interstate interest and concern." The National Association head declared that the complete cooperation of the enterprises under state commission jurisdiction, including communications, was assured and that unified effort could accomplish maximum results in the preparedness program.

Telephone Manufacturing Industry Presents Wage Picture on Government Contracts

AN excellent array of facts to show that the proposed minimum wage of 52½ cents per hour for telephone manufacturing should not be established under the Walsh-Healey Act for government contracts because of the preponderance of lower skilled labor in the assembly of apparatus and equipment parts was presented to the Labor Department's Public Contracts Board in a hearing during the latter part of May by the entire industry, both Western Electric and Independents. As a result of the factual showing and due to the present moves in Congress to waive these minimum wage conditions for national defense manufacturing, it is believed that the telephone manufacturing industry will be able to achieve its proposal of a minimum wage of around 40 cents per hour. Army and Navy authorities were understood to have been impressed with the telephone manufacturing industry situation so that their influence in reducing the project of a 52½-cent minimum may be swung into the picture.

The hearing before the Public Contracts Board was featured by the showing of the Independent manufacturing industry that its chief customers were telephone operating companies with their rates rigidly regulated by Federal and State Commissions. The chief spokesman of the Independent industry—Wesley M. Angle, president of the Stromberg-Carlson Telephone Manufacturing Company—featured that the Contracts Board had only surveyed the wages and classes of employees of two Western Electric plants at Kearney, N. J., and Hawthorne, Ill., and in order to have obtained a complete picture should have studied the situation of Independent companies, especially those in smaller towns. It was brought out conclusively that the industry, both Western Electric and Independents, paid a very high level of wages as compared to other manufacturing fields.

The discrimination threat in the proposed 52½-cent wage for telephone manufacturing as against 40 cents for radio transmitters and signalling devices when the latter might have the same employees and machines used in assembling small parts was depicted to the Board by both the Independent industry and the single Western Electric witness, John L. Alden, Kearney Works superintendent of manufacturing and engineering.

The Board was asked to consider the particular importance of telephone manufacturing in the light of the existing national emergency so that no delay

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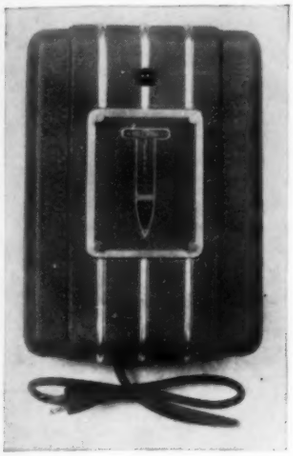

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Fig. 950

WOODSCREW FIBER ANCHOR Fig. 955

Fig. 900

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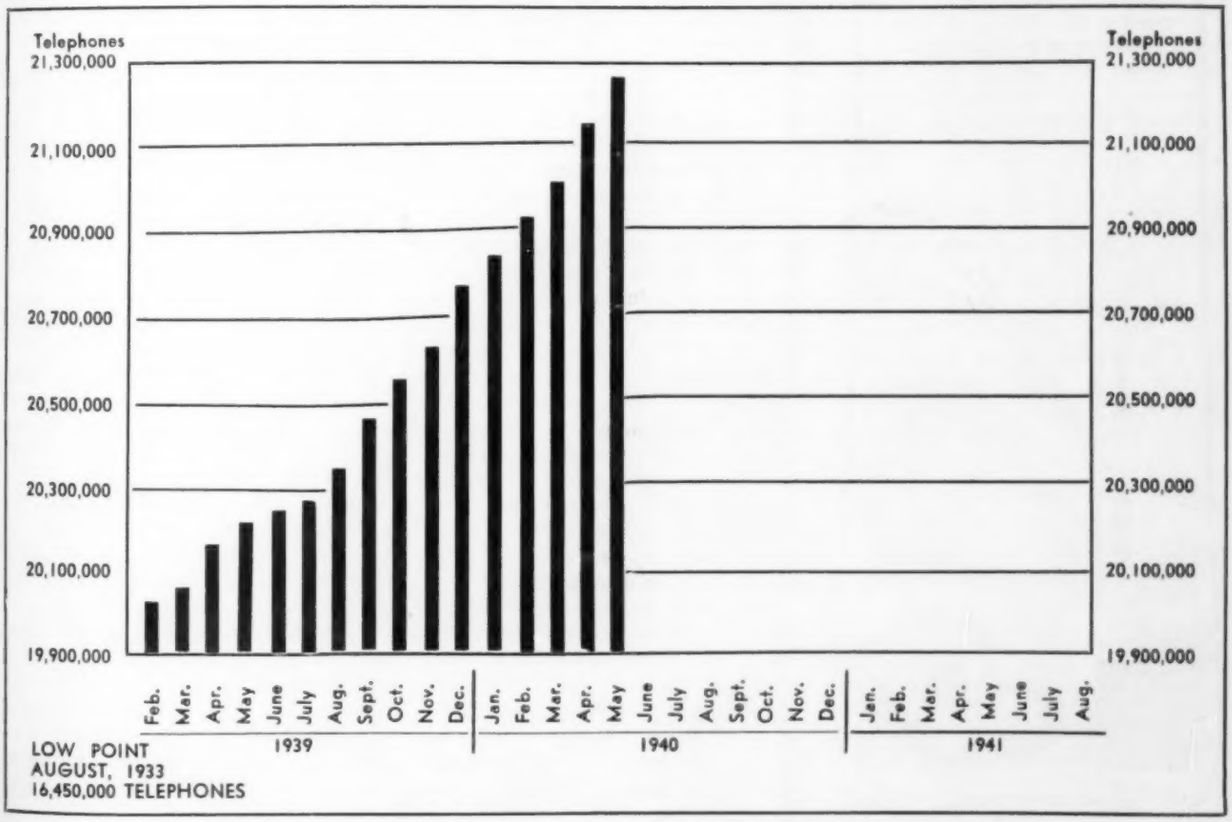

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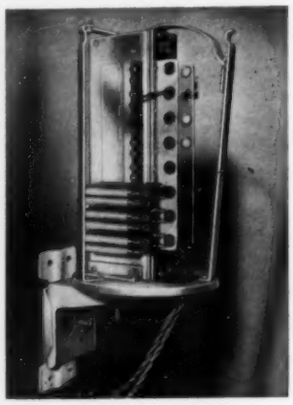

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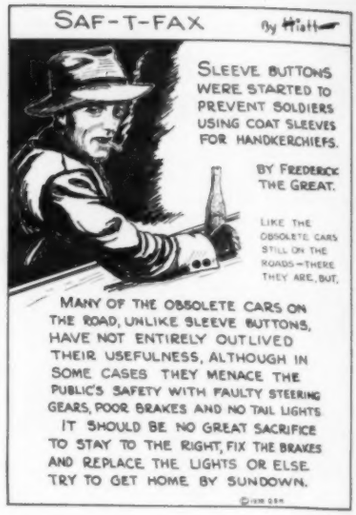
in production should occur and speed of manufacture should not be retarded. The Independent industry asked that a minimum wage of not more than 40 cents be established and that a differential for smaller communities should be studied while the employment of a reasonable proportion of learners for a period of two to three months at lower wages should be provided. Besides Mr. Angle and Mr. Alden, others at the hearing were Clarence Stoll, Western Electric president; T. Brooke Price, Western Electric vice-president and general counsel; P. W. Conrad, Automatic Electric president; Maurice K. McGrath, Kellogg Switchboard & Supply Co. president; F. R. McBerty, president, and L. G. Davis, treasurer, both of North Electric; and Alexander C. Reid, Leich Electric Co. president. Wililam Bruckart, Washington representative of the United States Independent Telephone Association, briefly testified that increased apparatus prices would result from the higher wage and the operating telephone companies would have the added burden of these equipment costs while their rates were frozen by the regulatory commissions.

The testimony of the Western Electric official was featured by a lengthy description of the operations and processes in assembling parts for telephone apparatus, radio transmitters and signalling devices. Mr. Alden of Western Electric cited that this assembling work required lesser skilled labor, mainly female, and consisted of relatively simple operations by the worker. He informed the Board that the differentials between the telephone apparatus wage and the pay rate for radio transmitters and signalling manufacture would lead to an impossible situation of discrimination because the same employees and same machines were used.

In the main testimony for the Independent industry, Mr. Angle asserted that his branch of the field was more important to the government on the basis of past contracts and that the Independents felt their production, designs and apparatus performance outstripped Western Electric. The Stromberg-Carlson president told the government agency about the importance of the Independent telephone service in the smaller and rural communities of the country, citing that in the Middle West particularly Independent telephone service was a predominant factor. The five major Independent manufacturers sold $200,000,000 worth of products annually, had 35,000 employees with an $80,000,000 payroll and purchased $75,000,000 worth of raw materials and supplies. He stressed that the telephone manufacturing industry should not be linked


SAF-T-FAX
By Hiatt
SLEEVE BUTTONS WERE STARTED TO PREVENT SOLDIERS USING COAT SLEEVES FOR HANDKERCHIEFS.
BY FREDERICK THE GREAT.
LIKE THE OBSOLETE CARS STILL ON THE ROADS—THERE THEY ARE, BUT,
MANY OF THE OBSOLETE CARS ON THE ROAD, UNLIKE SLEEVE BUTTONS, HAVE NOT ENTIRELY OUTLIVED THEIR USEFULNESS, ALTHOUGH IN SOME CASES THEY MENACE THE PUBLIC'S SAFETY WITH FAULTY STEERING GEARS, POOR BRAKES AND NO TAIL LIGHTS
IT SHOULD BE NO GREAT SACRIFICE TO STAY TO THE RIGHT, FIX THE BRAKES AND REPLACE THE LIGHTS OR ELSE. TRY TO GET HOME BY SUNDOWN.

with so-called heavier electrical products field, like industrial heating equipment, electric refrigerators, etc. He brought out that in smaller communities where some Independent manufacturing companies operated there was a lower tempo of work and the wages of the industry were on a parity with similar work in the community. He also noted that most of the Independent companies had an "incentive" system of employee compensation so that workers averaged from 20 to 25% above their base wages. In some companies, too, there was a profit sharing system for employees.

The Contracts Board was given by Mr. Angle a picture of the importance of the Independent manufacturing industry for national defense. The military authorities were particularly anxious to have diverse locations of plants and are constantly urging increased participation by the Independents in Government contracts, he noted. With scattered locations the opportunities for sabotage or military enemy interference would be lessened, he added. He stressed that in a period involving intensive and increased emergency purchasing all of the facilities of the manufacturing industry might be needed.

A description of employment conditions and prevailing wage rates for telephone manufacturing companies in small towns was given by Mr. Reid, Leich Co. President, and Mr. Davis, North Electric Co. Treasurer. Both cited that their base rate of pay of 30 cents an hour was as high and higher than similar manufacturing industries in their respective communities of Genoa, Ill., and Galion, O., They brought out that the labor force for the unskilled and semi-skilled workers was drawn from the farms and nearby small communities. Mr. Reid pointed out that the employees of his company received a share of the net earnings.

President McBerty of the North Electric Co. emphasized that the technical energy and skill of the telephone engineers and executive had been directed during recent years in reducing the size of switchboards and in keeping the costs of apparatus down as far as possible. He told the Board that costs of equipment had to be as low as possible so that telephone subscriber rates could be maintained at the cheapest levels permitting a fair return. If it is proposed through increased wages of a substantial character to throw aside all this achievement, he indicated this would set back the progress of the telephone industry. He added that the industry was not adverse to higher wages but did not want such increases unless based on actual studies of conditions. Reviewing his lengthy experience in the telephone field, Mr. McBerty described how telephone apparatus had been changed in design from the bulky manual switchboards to the present complicated structures which took up much less space and were less costly to operate. He related that the process of dial service was probably the most complicated mechanical functioning of any present day device, requiring 250 to 300 electrical operations in the circuit to complete a single call.

FCC Special Telephone Fund Seems Doomed; Regular Budget To Be Cut 10%

THE renewed drive of the FCC for additional funds to expand its telephone regulatory activities—a request for an added 1941 fiscal year appropriation of $142,000—seems almost certain to fail because of the Administration's aim to curtail all civil-agency appropriations due to the tremendous needs for national defense preparedness.

The Commission presented its reasons for the $142,000 fund before the House Appropriations Subcommittee handling the final deficiency bill. FCC Commissioner Paul A. Walker, together with Chief Engineer Jett, Chief Accountant Norfleet and Attorney Frank Warren of the Commission, appeared before the House body in an executive session during the latter part of May. It was understood the FCC contentions stressed the success in toll rate reductions as justifying continued telephone regulatory studies.

Not only may the FCC suffer the loss of this $142,000 telephone regulation fund, but its regular appropriation for the 1941 fiscal period of $2,100,000 also is almost certain to be slashed under the order of President Roosevelt that non-defense government departments and agencies must curtail their next year's budget by 10 per cent. The FCC 1941 allotment of $2,100,000 would thus be reduced to around $1,900,000 or just slightly more than the present appropriation of the Commission which is $1,829,000.

FCC Commissioner Brown Reappointed for Seven-Year Term

COMMISSIONER Thad H. Brown, Ohio Republican, was reappointed by President Roosevelt early in June to the FCC for another seven-year term which will expire June 30, 1947. His confirmation by the Senate is deemed assured as he has the backing of important Senate Republican leaders as well as outstanding Ohio Democratic political figures, but because some members of Congress have been somewhat critical of certain FCC broadcasting decisions the Senate Interstate Commerce Committee plans a hearing on his confirmation during the middle of this month.

With his reappointment, Commissioner Brown becomes without any question the veteran member of the FCC. It is his third term on the Federal communications-radio board, having served one term from 1932-34 on the old Radio Commission and then was given a six-year post on the FCC when it was created in 1934. While his major interests have been in broadcasting, Commissioner Brown was vice chairman of the former FCC Telephone Division for three years and participated in the $1,500,000 Telephone Investigation. He is well acquainted with the Independent telephone officials in Ohio. He also has directed the marine radio communications survey of the Great Lakes and is considered the FCC's specialist in that field.

Miscellaneous Items

The New Jersey Bell and Southern Bell leading officials conferred with the FCC early in June on the Commission's proposal for a revising of certain inconsistencies in their companies' interstate toll rates as compared with the A. T. & T. Long Lines schedules. This was part of the drive being made by the FCC to bring toll rates throughout the country to a uniform level—the New England Telephone and Telegraph Co. recently revamped its interstate and intrastate toll tariffs to produce an estimated annual reduction of $440,000 of which the savings to subscribers for interstate service will be around $155,000 with the new rates to be effective July 1.

In the most controversial decision of its stormy history, the FCC has decreed that to maintain a "genuine and healthy competition" with the new television industry it would not grant

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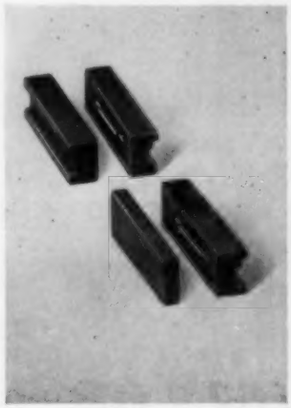

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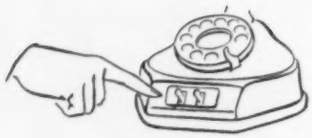

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To the telephone company, it offers an opportunity to provide additional service — and to secure additional revenue.

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full commercialization until the industry's engineers had agreed on a single uniform system of transmission. This ruling which was directed to prevent RCA from obtaining too strong a foothold in public television service without any effective competition appears to have placed television considerably behind the new broadcasting system of frequency modulation which is to be given full commercialization Jan. 1, 1941. The FCC, is planning to call a conference of the leading television engineers in the near future to try to evolve uniform standards. There seems to be no disposition by the FCC to approve a radio relay system for television and because of this view the prospects of the coaxial cable being the future television network link are brighter.

The telephone companies were in no way involved in the incidents of wire tapping of political figures in Rhode Island and Pennsylvania, it has been developed in the recent hearings before the Senate Interstate Commerce Committee. An official of the New England Telephone and Telegraph Co., told the Senate body that the company knew nothing about the Rhode Island wiretapping by a detective agency until complaints about it were received. Senator Stewart, (D. Tenn.), subcommittee chairman, stated that he knew "telephone companies do not engage in that kind of business."

The United States Independent Telephone Association has presented its views to the Wage-Hour Division on the definition of executives and administrative employees for exemption from the maximum hours provision. The essence of its position was that employees with supervisory duties and administrative work, receiving a basic wage of $30 to $40 per week should be exempt from the hours regulation.

END

Change of Ownership

The Southwestern Bell Telephone Company, which has operated the local telephone exchange at Quinlan and rendered service for the past 20 years, has sold its local interest to Mr. and Mrs. Dee Cole of Cumby, Texas. Mr. and Mrs. Cole have been operating a telephone system in Cumby for the past 9 years and are experienced in the business. A new drive for telephones started at once, and many Quinlan people are installing telephones. The new telephone exchange will be operated by Mr. and Mrs. Ira Cole, and will be known as the Quinlan Telephone Company.

25 YEARS AGO THIS MONTH

(Taken from TELEPHONE ENGINEER files of June, 1915)

Telephone Engineer carried two full pages of telephone pictures and progress in all parts of the world. Many of the pictures illustrated the part the telephone was playing in trenches during the early stages of World War I.

▲

Meeting of Telephone Pioneers of America at San Francisco, at which time a demonstration of transcontinental telephony participated in by many representatives of the industry.

▲

Wireless telephoning across the Atlantic nearing completion, according to Peter Hewitt. Predicted that within ten years ships would be equipped with wireless telephones.

▲

Annual meeting of the Tri-State Independent Telephone Association is held at Memphis. Prominently mentioned at this meeting were W. H. Bryant of Mobile, Albert Parlett of Bristol, Tenn.; R. H. Polk, Memphis; J. C. Kelsey, Chicago and E. B. Fisher of Grand Rapids, Mich.

▲

John F. Tompkins of the Frank B. Cook Company, Chicago, reported sale of equipment to New Zealand. Tompkins was very much elated over the order, placing Cook products in that country.

▲

Kellogg Switchboard & Supply Company moved into its new building, corner Adams and Aberdeen streets. (Kellogg is now located in their new home at 6650 Cicero Ave., Chicago.)

▲

John H. Wright, Jamestown, N. Y., was elected vice-president of Jamestown Chamber of Commerce. Mr. Wright was one of the active members who organized the Independent Telephone Association of America.

▲

Hoyt Gilbert, manager of the Hinckley exchange of the DeKalb County Telephone Company, Illinois, retires from the telephone business.

▲

The Dallas Automatic Telephone Company (Texas) granted permission to issue an additional $50,000 worth of stock. John Casler was president of Dallas Automatic at that time.

Obituaries

Henry J. Miller, 85, treasurer of the Kenton Telephone Co. since 1900, died April 27, in Kenton, Ohio, of a heart attack.

H. E. Pancost, 67, former manager of The Miss. Valley Telephone Co., in Carthage, Illinois, died April 30 at the home of his daughter, Miss Virginia Pancost in East Moline, Illinois, where he had been since January.

L. S. Crousaz, 68, former manager of the Northwestern Bell Telephone Company in Shenandoah, Iowa, died at his home in Shenandoah, May 21.

E. J. Boorman, 50, a pioneer worker with the Bell Telephone Company in Buffalo, N. Y., died at his home in Amherst, May 22.

Leonard S. Ritter, 50, survey engineer with the Government unit of the Chesapeake & Potomac Telephone Co., died May 24 in Washington, D. C., after a long illness.

Mrs. Catherine Moore, 72, former principal of the Illinois Bell Telephone Co.'s training school for operators, died June 3, at her home in Chicago.

Pioneers Select Service Emblem

A service emblem for Independent Pioneers has been selected by an Association committee, according to J. K. Johnston, secretary-treasurer of the Independent Pioneer Telephone Association.

It is octagonal in shape, embellished in four colors, and prominently displays the years of service in the telephone industry. Each five years a member advances from one service bracket to another and the trade-in value of the emblem for the change in years of service will be not less than 80% of the original cost. Orders are now being taken by the secretary at his office at 632 Lemcke Building, Indianapolis, Ind.

The committee, comprising five members, spent some time in selecting the emblem and had samples and bids from several manufacturers. It is necessary that the first order be at least 500 in number with prices as follows: to telephone companies and individual pioneers in lots of 10 or more, $3.35 each; less than 10 emblems, $3.50 each. Emblems have a safety catch. Three weeks will be required for delivery after order.

Write Mr. Johnston today and have him submit color facsimile as full cooperation of all Pioneers is requested.

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Trim construction . . . extra years of trouble-free service . . . you can depend on *both* when you specify L-M Pole Line Hardware and Telephone Construction Specialties. Back of every L-M hardware item and specialty you buy is the L-M record of 30 years of dependable service to America's great electrical utilities. Place your order for L-M hardware with our national distributor, the American Automatic Electric Sales Company.

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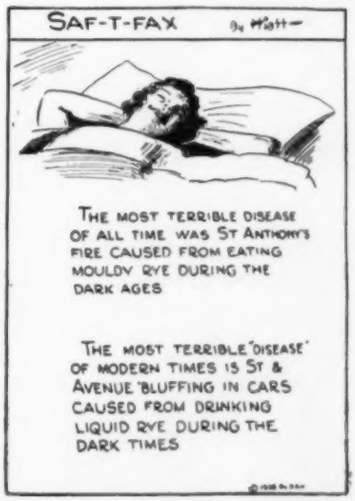
A. F. Hildreth Honored by City

Preparing to celebrate his 50th year as Fire Chief of the Hollis, N. H., Fire Department, E. F. Hildreth, owner of the Hollis Telephone Company, was accorded the honor of having his civic service recognized by inscription on the city records by resolution. Next month will mark the 50th year. His service to the community also extended to service as City Clerk during that period.


SAF-T-FAX
THE MOST TERRIBLE DISEASE OF ALL TIME WAS ST ANTHONY'S FIRE CAUSED FROM EATING MOULDY RYE DURING THE DARK AGES
THE MOST TERRIBLE 'DISEASE' OF MODERN TIMES IS ST & AVENUE 'BLUFFING IN CARS CAUSED FROM DRINKING LIQUID RYE DURING THE DARK TIMES

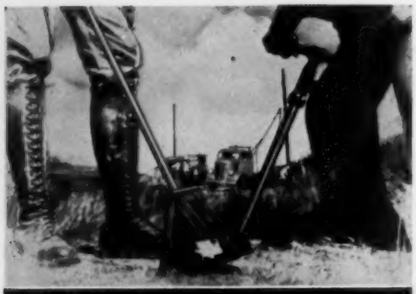
Station Gain

Subsidiaries of the American Telephone and Telegraph company today reported a gain of 86,900 telephones in May, compared with an increase of 84,100 in April and 72,600 in May, 1939. This brought the net gain for the first five months of 1940 to 431,000, against 354,300 in the comparable period a year ago.

Eliminates Inductive Interference

According to an American Consular report, an engineer of the Jutland (Denmark) Telephone Company has perfected an apparatus for eliminating inductive interference on open wire telephone circuits, particularly interference from radio broadcasting. No details of the invention were given in the report. The device has been adopted for commercial use by the Company.

Danish fishermen have been warned by Danish naval authorities not to use their radiotelephone and radiotelegraph equipment in the vicinity of mine fields as it has been found that such use may induce electrical currents of sufficient strength to explode the mines.



Why big users

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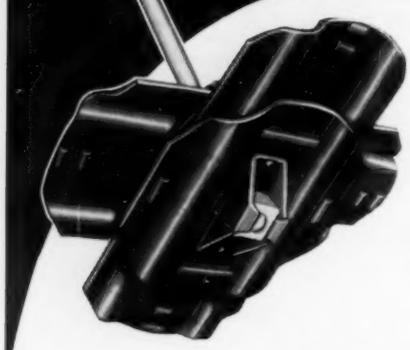

. . . . for their expanding anchor installations . . . .

- Chance Steel Expanding Anchors have more holding power because they expand, on the average, to two and a half times their size, expand with minimum earth disturbance and hold without breaking or bending.
- The all steel construction withstands severe punishment without danger of breaking or coming apart.
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- Rigid connections, grooved blades and base plates make it impossible for roots, rock, etc. to throw blades out of line.
- Blades expand in opposite directions equalizing pull strain and preventing side twisting or shifting.
- Metal anchor tags identify anchors before and after installation.

It pays to specify Chance Steel Expanding Anchors for all expanding anchor installations.

A·B·CHANCE CO. CENTRALIA MISSOURI

F. G. Chance A. B. Chance T. J. Isbell

F. G. Chance Selected as President

A. B. Chance, who founded the A. B. Chance Company in 1907 and piloted it to success recently appointed his son F. G. Chance to succeed him to the presidency thus giving himself an opportunity to view the scene from a different and wider perspective as Chairman of the Board.

F. G. Chance, the new President, and General Manager, formerly Vice President and General Manager, has appointed N. A. Toalson Vice President, T. J. Isbell, Vice President in Charge of Sales, and O. E. Walker, Vice President in Charge of Production.

New "Streamlined" Light Climbers

Using a new design which eliminates the use of an unnecessary metal without any sacrifice of the safety factor, Mathias Klein & Sons, 3200 Belmont Avenue, Chicago, Ill., announces a new "Streamlined" lineman's light weight climber.

The new climber (No. 1939) is forged from special bar steel, heat treated for maximum toughness and strength. The new model is equipped with a special ankle strap ring which permits easy removal of an old strap and attachment of a new one. The ring makes the crossing of the straps unnecessary and, hence, increases comfort of the user. Gaffs are individually tempered; they are particularly suited for climbing hard and treated poles.

New Handbook

The William Schollhorn Company of New Haven, Connecticut, has announced the publication of an engineering Hand Book. This Engineering Hand Book, consisting of seventy-three pages, gives full sized detailed drawings of all their Bernard Pliers and Plier Action Tools. The hand book is the loose-leaf type so that any page may be removed for use on a drawing board and then replaced.

Because of the heavy cost of producing this Engineering Hand Book, The Wm. Schoolburn Company is obbliged to set a nominal price of twenty-five cents a copy. Any one of our readers may secure a copy by writing The Wm. Schollburn Company, Engineering Department, New Haven, Conn.

Time Delay Relays

The TD type time delay relay illustrated is designed for use on alternating current circuits to automatically time the opening or closing of electrical circuits with great accuracy. The time intervals required can be adjusted by means of a micrometer setting knob.

The relay consists of a completely enclosed snap action switch actuated by an operating arm driven in one direction by a small synchronous motor which has an enclosed magnetically operated gear clutch and a spring resetting means to the starting position after the time cycle has been completed.

Several time ranges are available. The contact has a capacity of 10 amperes at 115 volts or 5 amperes at 230 volts.

The instrument is manufactured by The R. W. Cramer Company, Inc., Centerbrook, Conn.

Book Review

Electrical Communication by Arthur L. Albert 2nd Edition, January 1940.

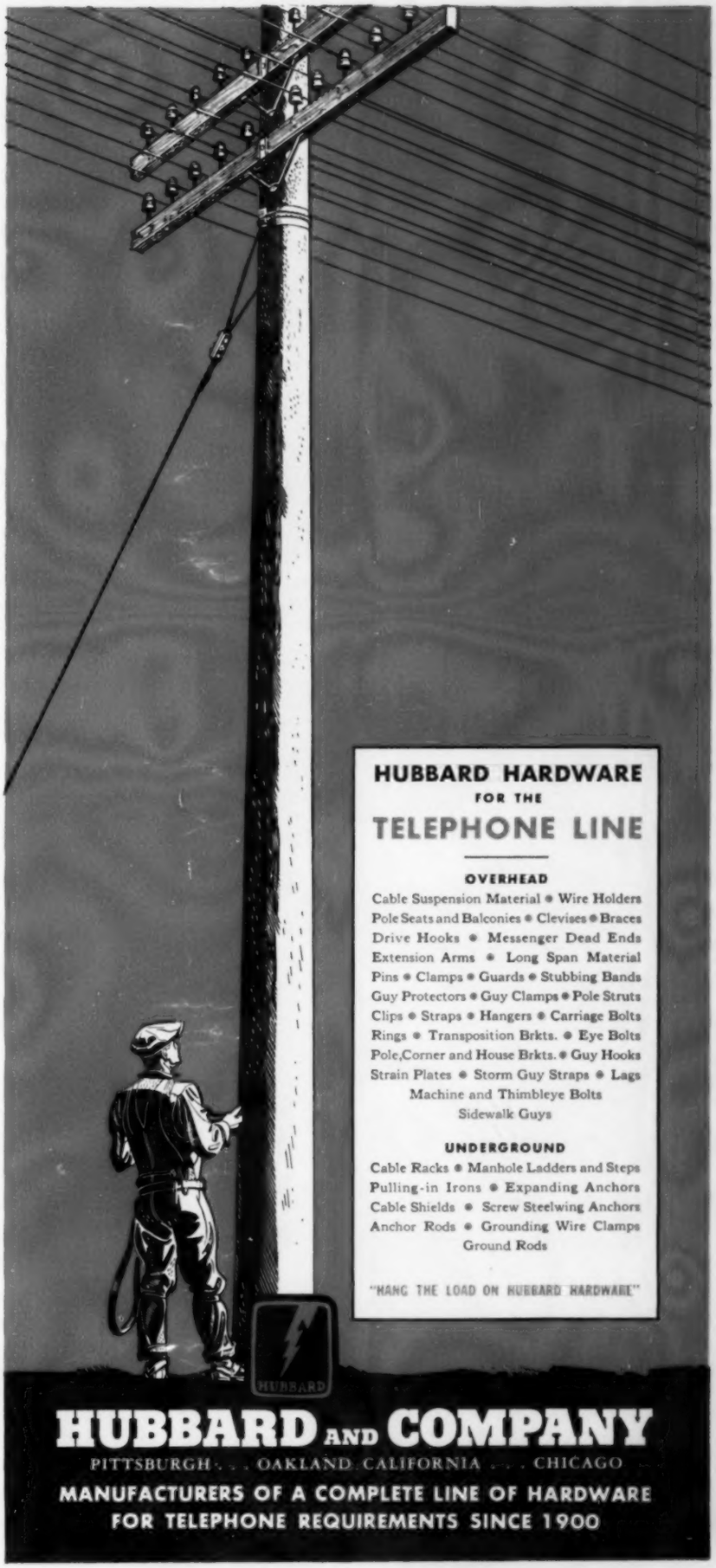
"Electrical Communication" provides the service of bringing together the branches of telephony, telegraph and radio, describing their history, underlying principles and methods of practical application. This book, which is already well-known in the telephone field, has been thoroughly revised and offers up-to-date information in not too technical language. Nearly 1/3 of the content has been entirely re-written and the remainder revised to incorporate recent advances. 534 pages; 398 illustrations; $5.00. Order through TELE-

I. T. & T. Reaches Spanish Agreement

Shareholders of the International Telephone and Telegraph Corporation received May 23, the first encouraging news from Europe in nearly four years with the announcement in Madrid that an agreement had been reached between the Spanish Government and I. T. and T. restoring to the corporation the management and control of its Spanish telephone properties. The agreement consummates months of negotiation between Sosthenes Behn, president of I. T. and T., and Generalissimo Franco's government and embodies provisions for complete restoration of the Spanish Telephone Company to private ownership. No estimate of the damage to the Spanish telephone system resulting from the civil war has been made yet, but with the present agreement in hand, I. T. and T.'s executives hope to start immediately on a program of rehabilitation and expansion of the system's facilities.

ELECTRIC WIRING —W. S. Ibbetson

This is a standard book on electrical installation work; the aim of the author throughout has been to make the principles underlying the theory and practice of electric wiring as clear as possible. It contains a great number of problems both theoretical and practical, illustrated and worked out in detail. There are special chapters dealing with insulators and cables, batteries and bells. Published 1940. Price $2.50.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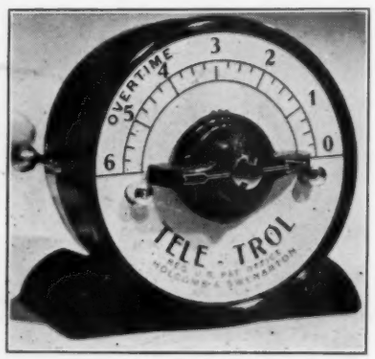
135 So. Second St., Philadelphia, Pa.

Newly Developed Portable Printer

The Elpro portable printer, sold by the Ozalid Corporation, Johnson City, New York, has been developed for applications where occasionally prints are required. It will make positive type reproductions in sizes up to 12x18 inches

of engineering drawings, maps, letters, reports, and in fact any pencil or ink lines, typewritten or printed matter appearing on one side of a reasonably translucent material. The exposed print is developed dry in a developing chamber located directly behind the metal reflector.

New Timing Device



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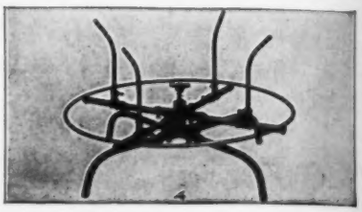

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